

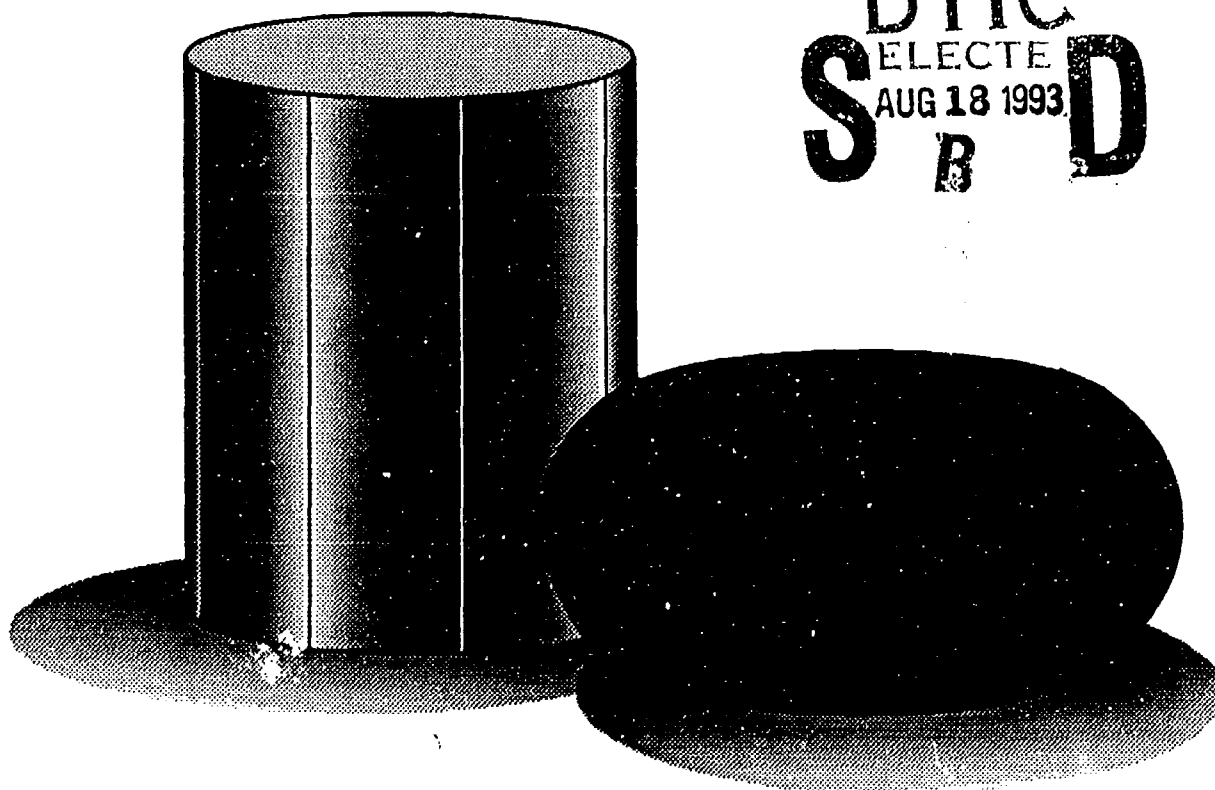
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# Atlas of Formability

Wrought Aluminum 7050  
Flow Stress Curves



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# NCEMT

**ATLAS OF FORMABILITY  
WROUGHT ALUMINUM 7050**

**by**

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**for**

**Naval Industrial Resource Support Activity  
Building 75-2, Naval Base  
Philadelphia, PA 19112-5078**

**February 20, 1991**

The views, opinions, and/or findings contained in this report are those of the authors and should not be construed as an official Department of the Navy position, policy, or decision, unless so designated by other documentation

REPORT DOCUMENTATION PAGE			Form Approved / OMB No. 0704-0188	
<small>Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204 Arlington, VA 22202-4302 and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503</small>				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE February 20, 1991		3. REPORT TYPE AND DATES COVERED Final, November 30, 1990-February 20, 1991
4. TITLE AND SUBTITLE Atlas of Formability Wrought Aluminum 7050			5. FUNDING NUMBERS  C-N00140-88-C-RC21	
6. AUTHOR(S)  Howard A. Kuhn				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) National Center for Excellence in Metalworking Technology (NCEMT) 1450 Scalp Avenue Johnstown, PA 15904			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)  Naval Industrial Resources Support Activity Building 75-2, Naval Base Philadelphia, PA 19112-5078			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION / AVAILABILITY STATEMENT			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words)  In this investigation, flow behavior of Aluminum 7050 alloy was studied by conducting compression tests over a wide range of temperatures and strain rates. Stress-strain curves were recorded for each test condition. These data are essential in metalworking process design or finite element analysis of high temperature deformation.				
14. SUBJECT TERMS  Aluminum 7050, High Temperature Deformation, Metalworking			15. NUMBER OF PAGES 37	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT  Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE  Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT  Unclassified	20. LIMITATION OF ABSTRACT	

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## Wrought Aluminum 7050

### Composition:

Al Bal.	Co 2.0-2.6	Cr 0.04 MAX	Fe 0.15 MAX	Mg 1.9-2.6
Mn 0.10 MAX	Si 0.12 MAX	Ti 0.06 MAX	Zn 5.7-6.7	Zr 0.08-0.15

### Testing Parameters

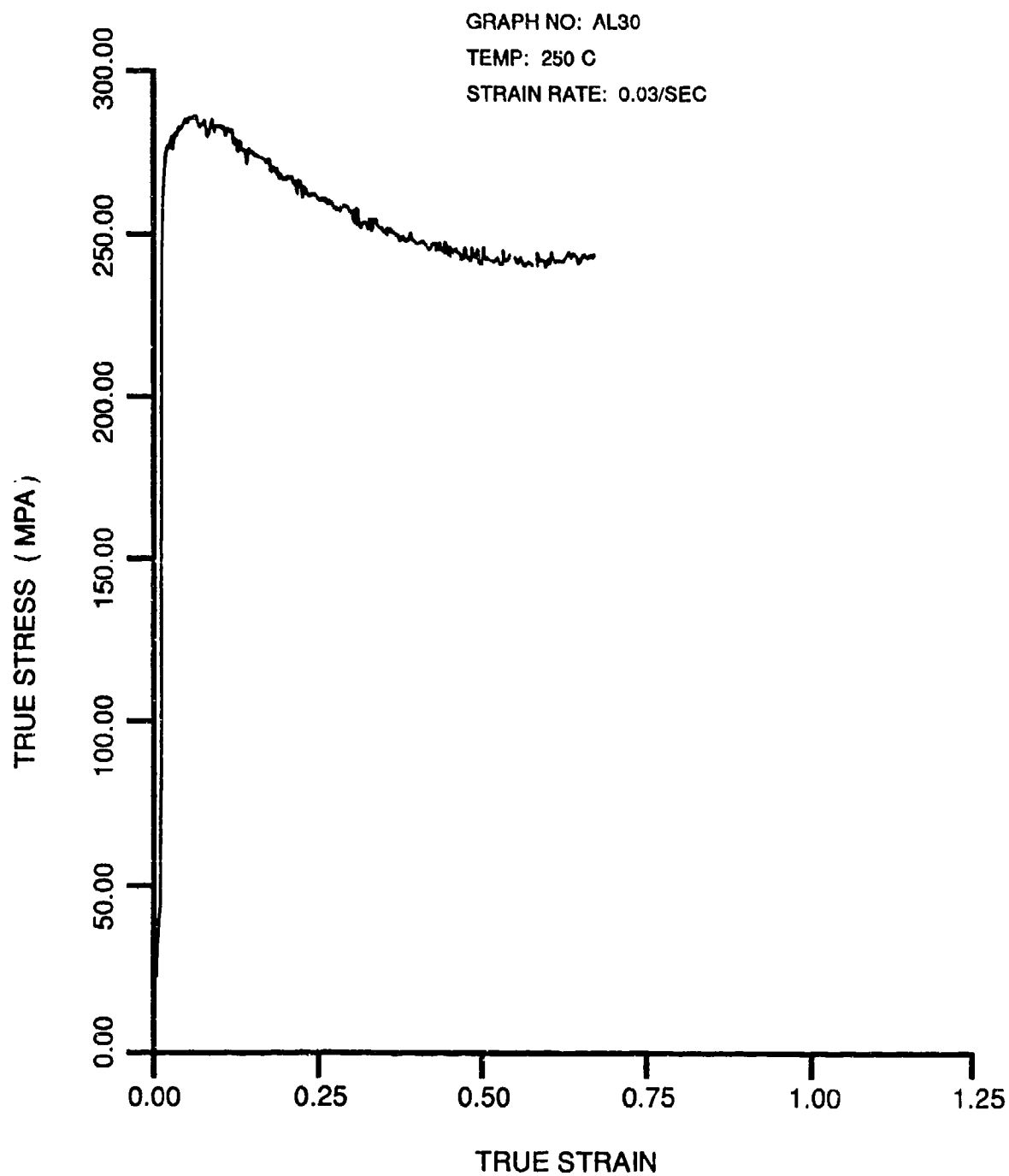
Strain Rate (1/sec.)	Temperature (deg. C)	Graph Number	Heat Treatment (time)	Page Number
0.03	250	Al30	4	3
0.03	300	Al32	4	4
0.03	350	Al33	4	5
0.03	400	Al34	4	6
0.03	477	Al35	4	7
0.03	Combination	Al50	-	8
0.3	300	Al28	4	9
0.3	440	Al27	4	10
0.3	Combination	Al51	-	11
0.6	250	Al37	4	12
0.6	350	Al19	4	13
0.6	400	Al22	4	14
0.6	440	Al24	4	15
0.6	477	Al26	4	16
0.6	Combination	Al52	-	17
2.0	300	Al16	4	18
2.0	400	Al17	4	19
2.0	Combination	Al53	-	20
5.5	425	Al11	0	21
5.5	425	Al12	0.5	22
5.5	425	Al38	0.5*	23

### Testing Parameters Continued

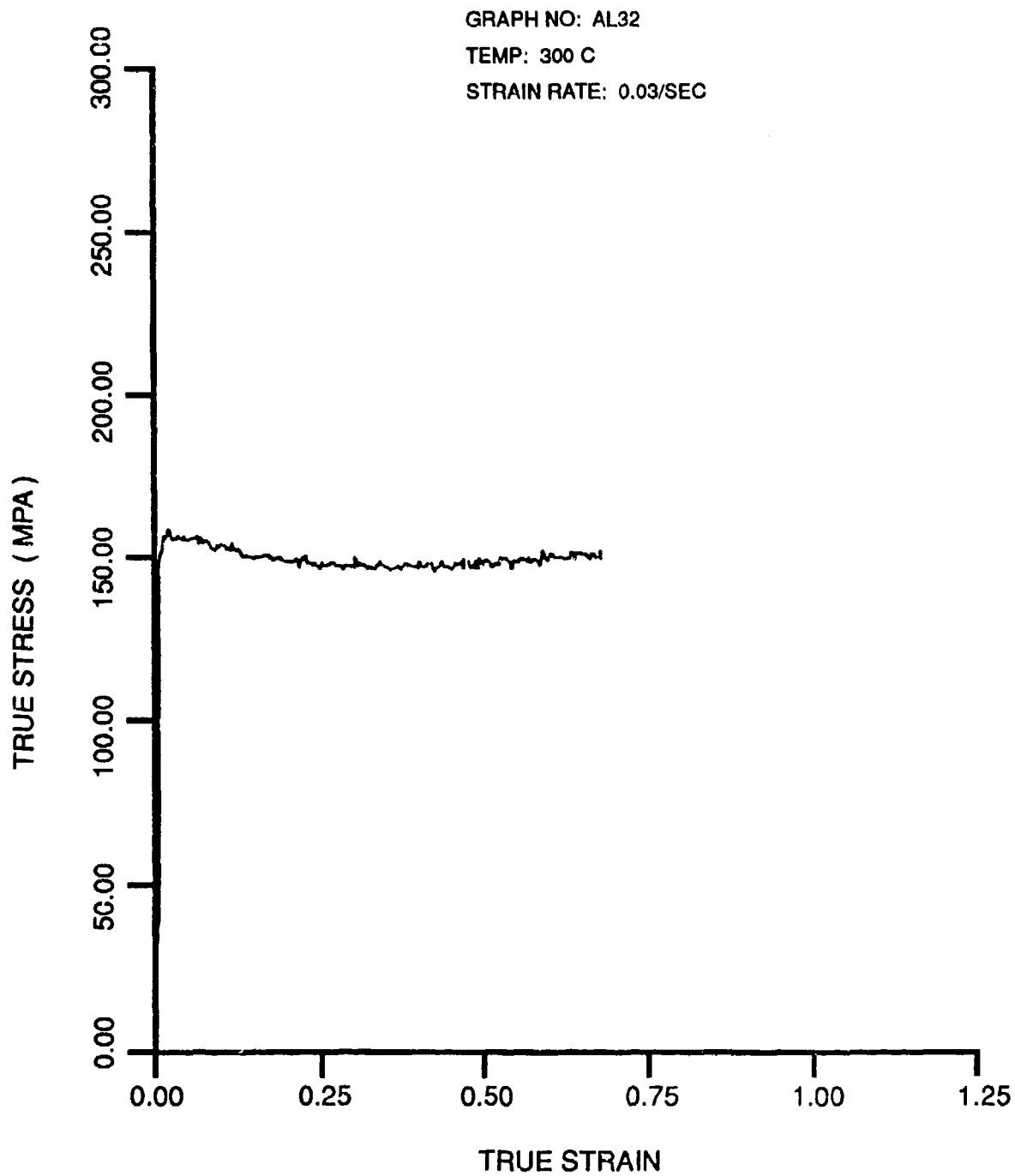
5.5	425	Al13	1	24
5.5	425	Al39	1*	25
5.5	425	Al40	2*	26
5.5	425	Al15	4	27
17.2	250	Al01	4	28
17.2	250	Al02	4*	29
17.2	300	Al03	4	30
17.2	350	Al05	4	31
17.2	400	Al06	4	32
17.2	440	Al07	4	33
17.2	Combination	Al54	-	34

\* NOTES: Specimens not marked by the asterix (\*) were quenched in water after heat treatment and kept in dry ice. They were then heated to the test temperature prior to testing.

Those specimens marked by the asterisk were also quenched in water after heat treatment and kept in dry ice. Prior to testing, the specimens were reheated for 5 minutes at 475° C inside the test fixture and then cooled to the test temperature.

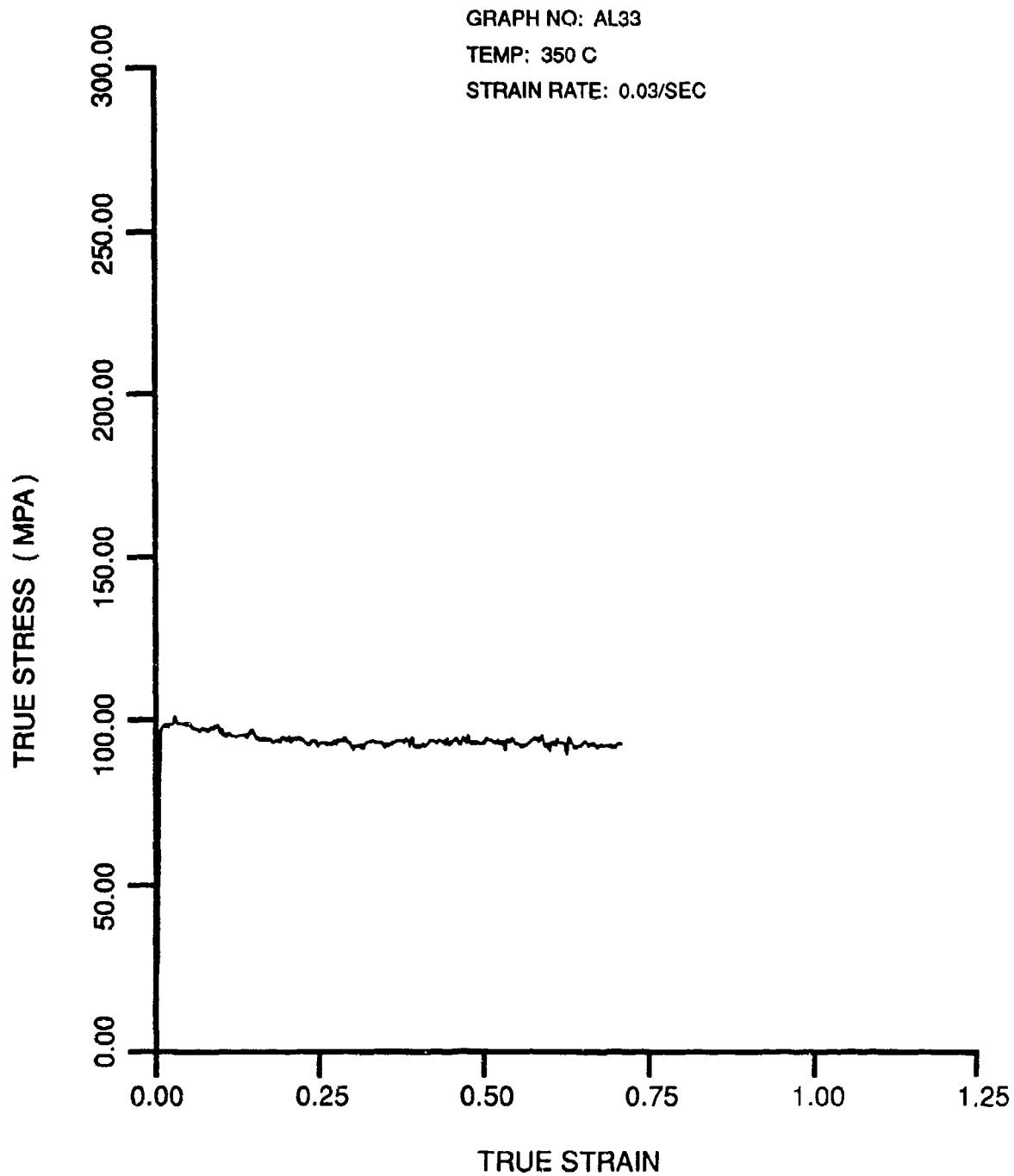


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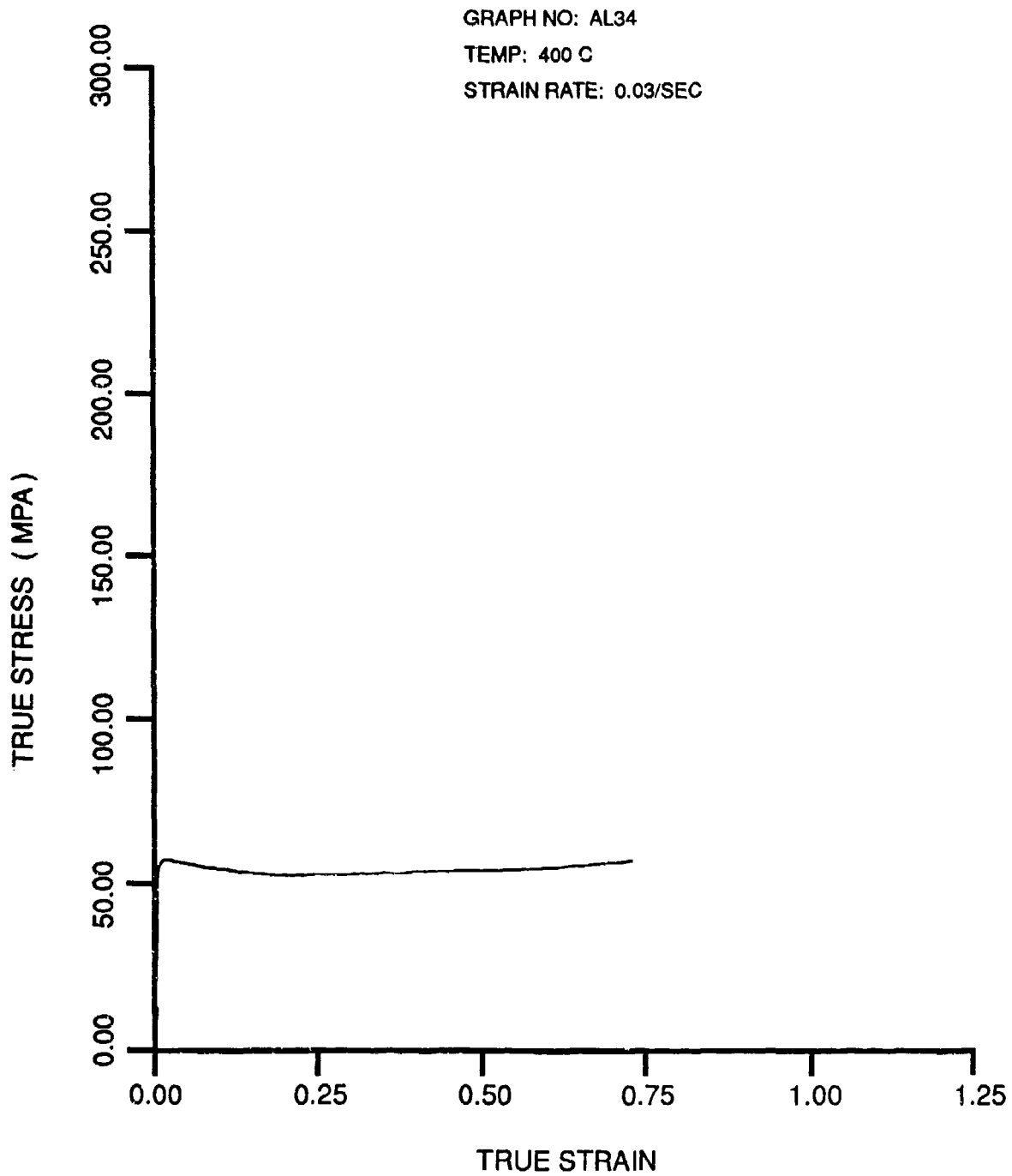


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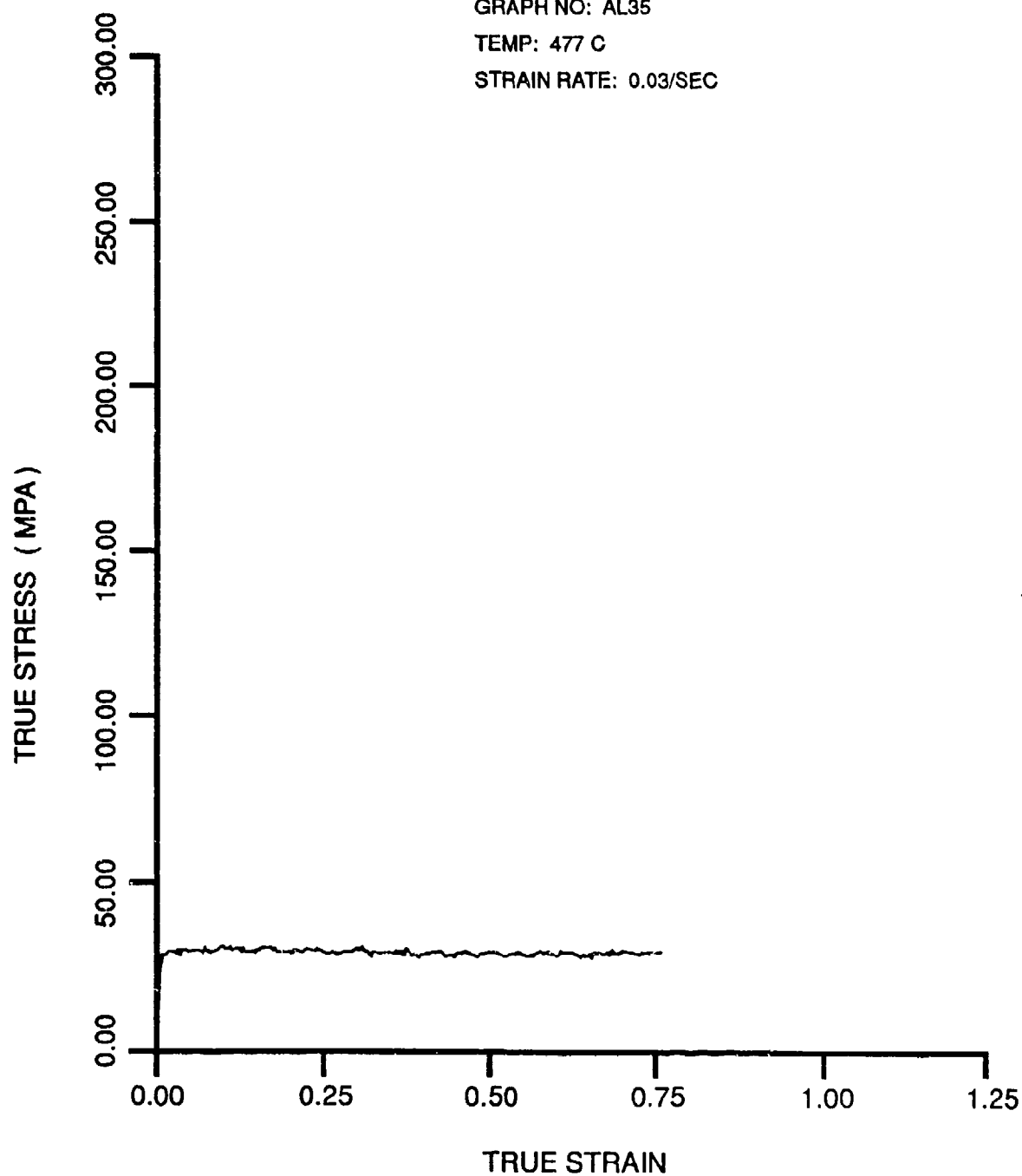


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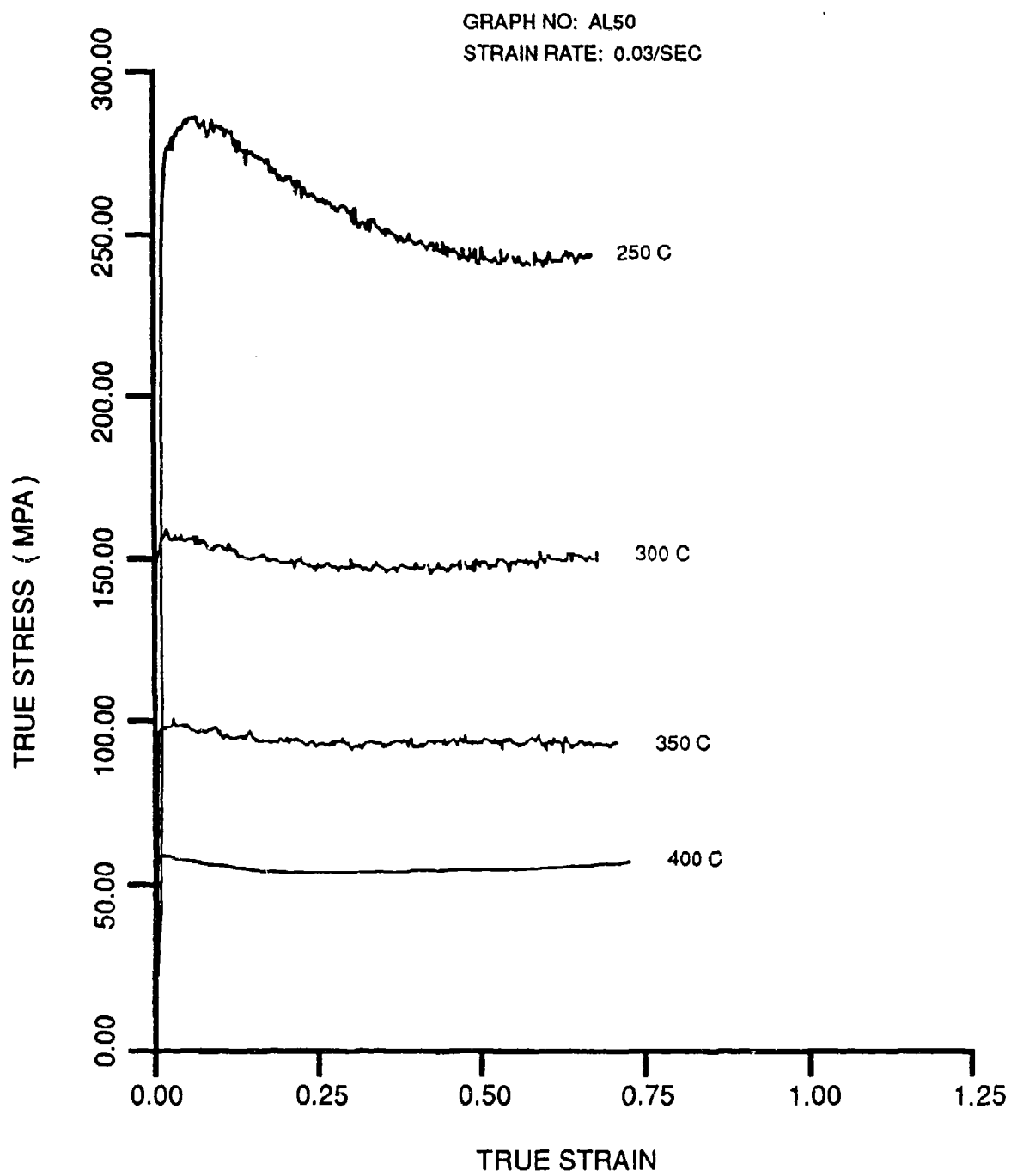
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STRAIN RATE: 0.03/SEC



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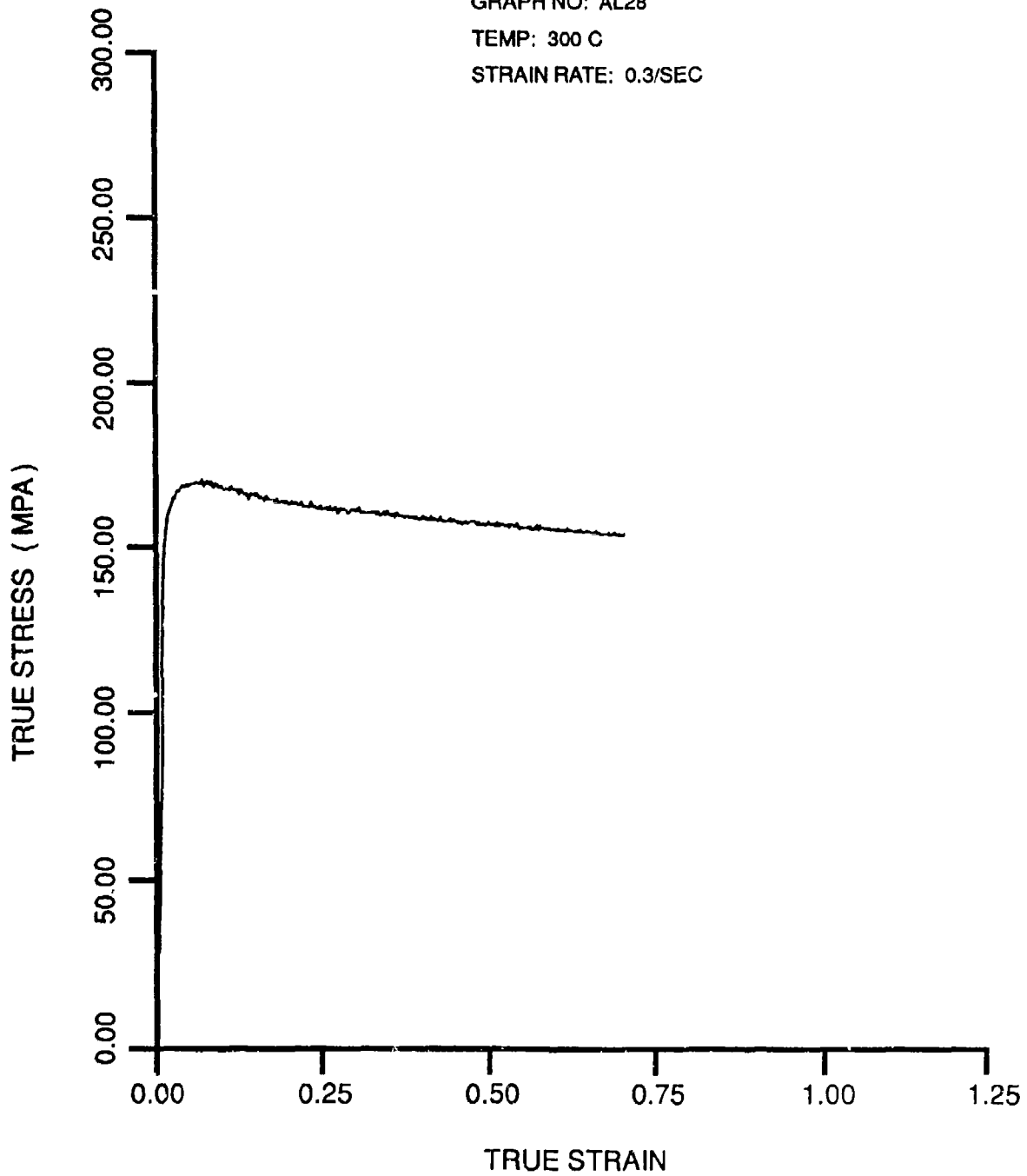


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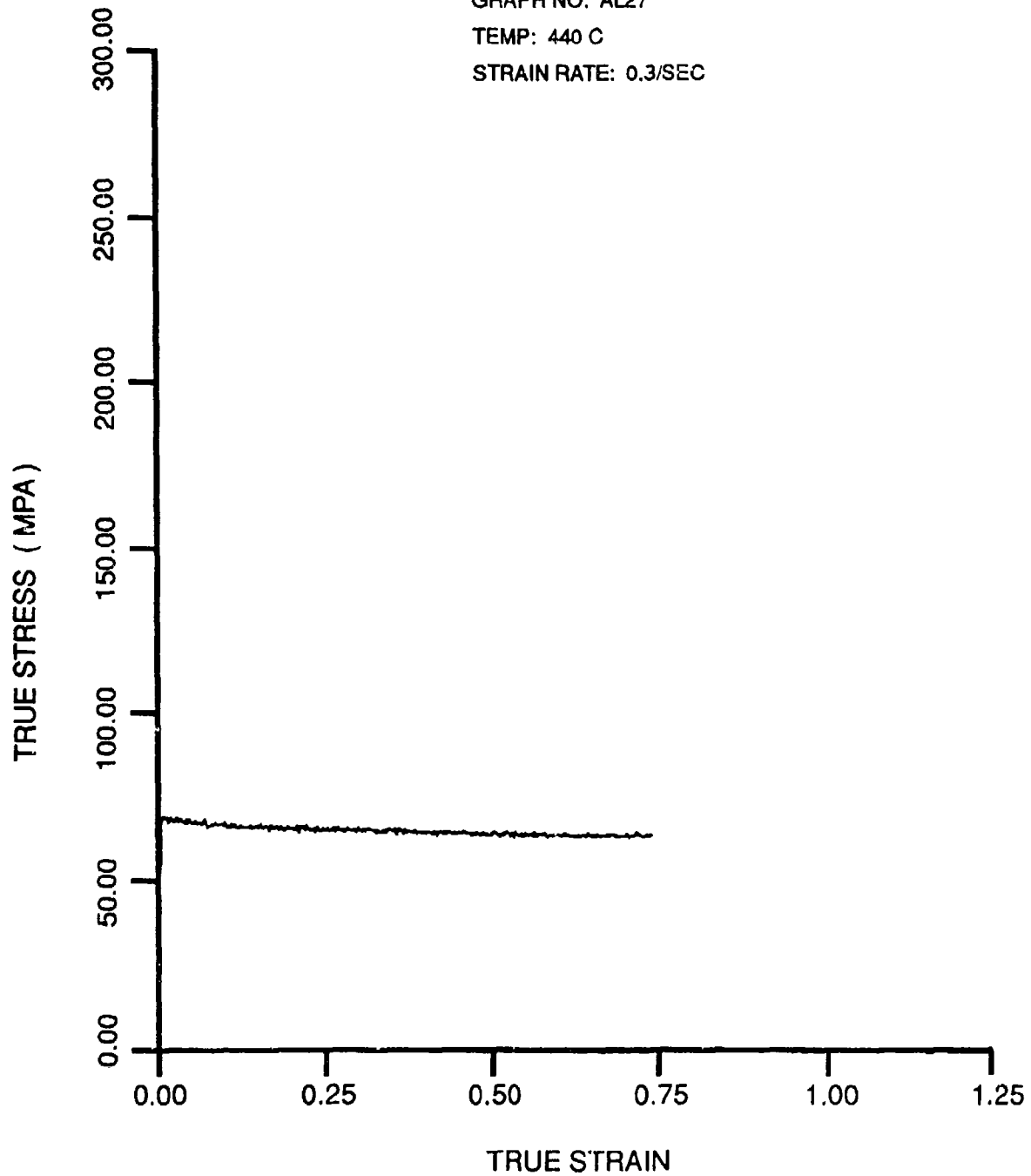


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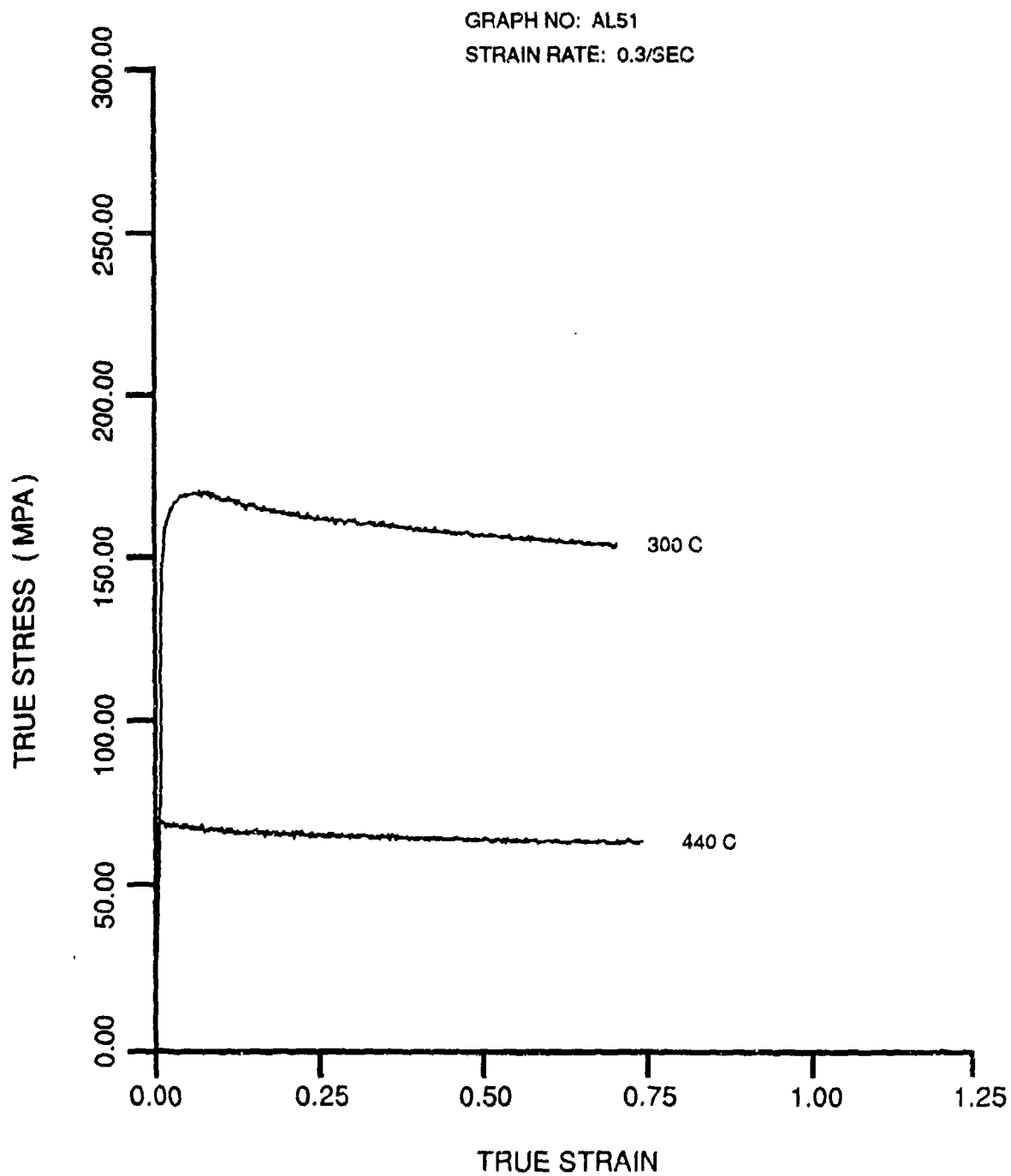
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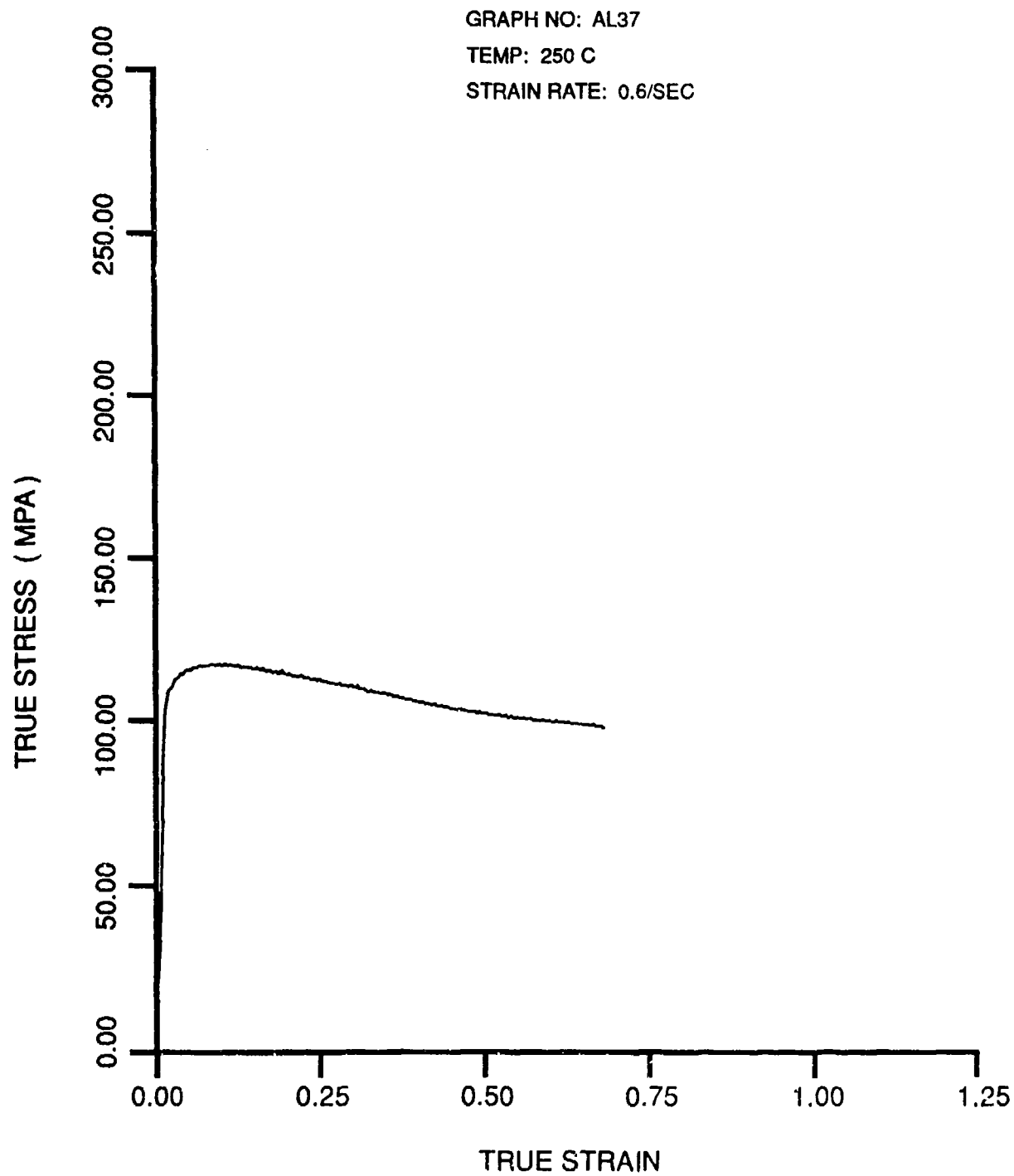
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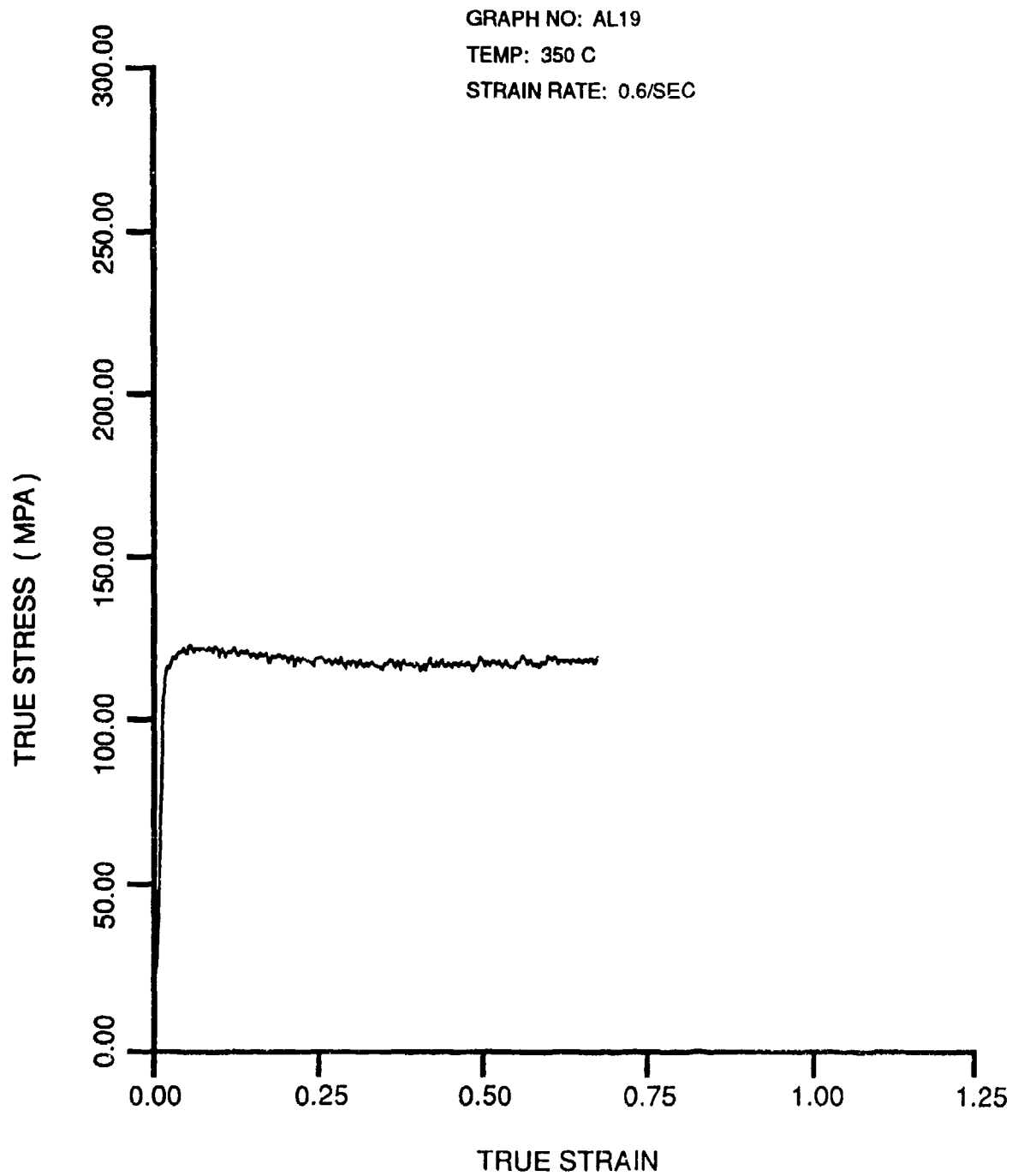


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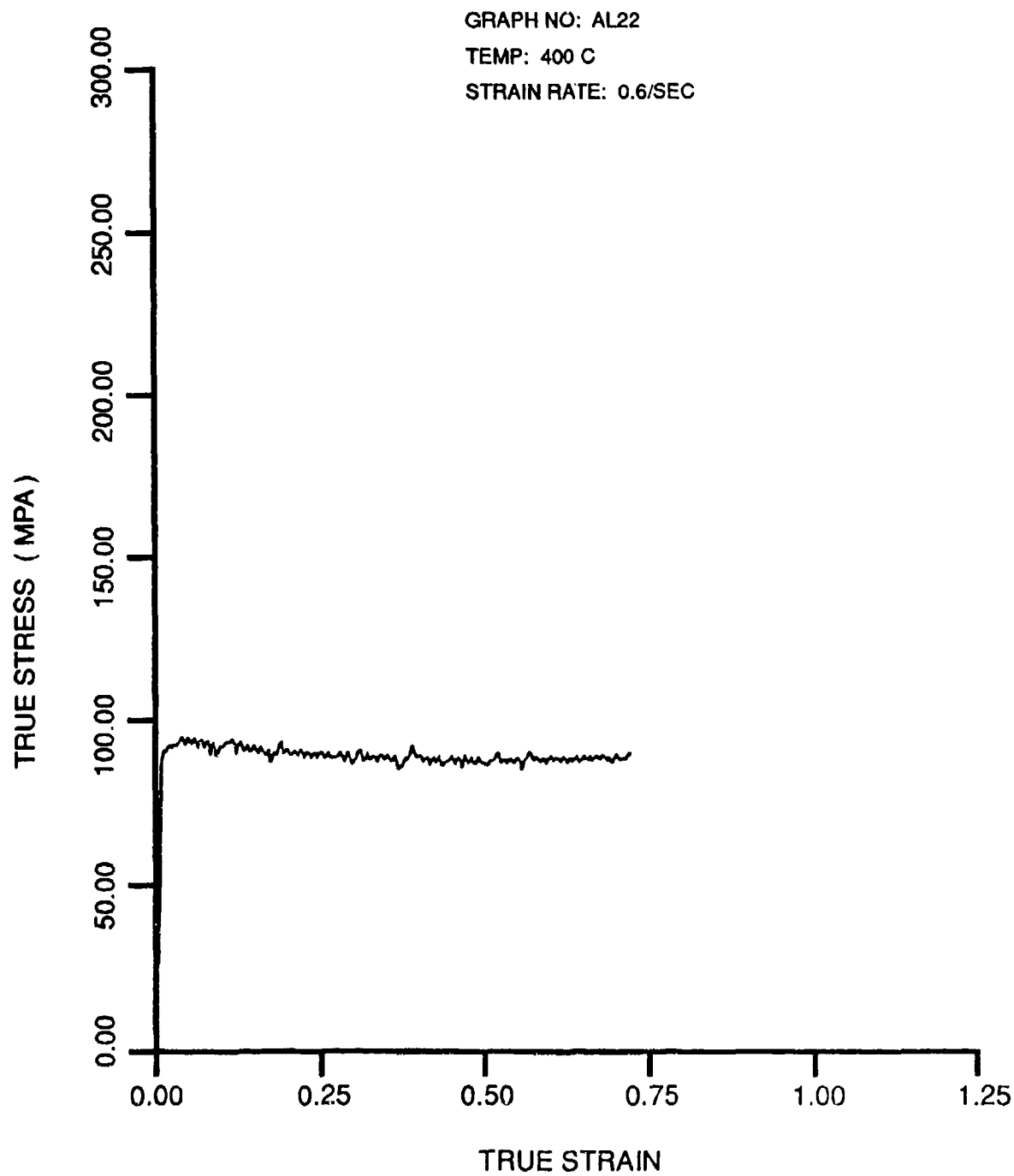


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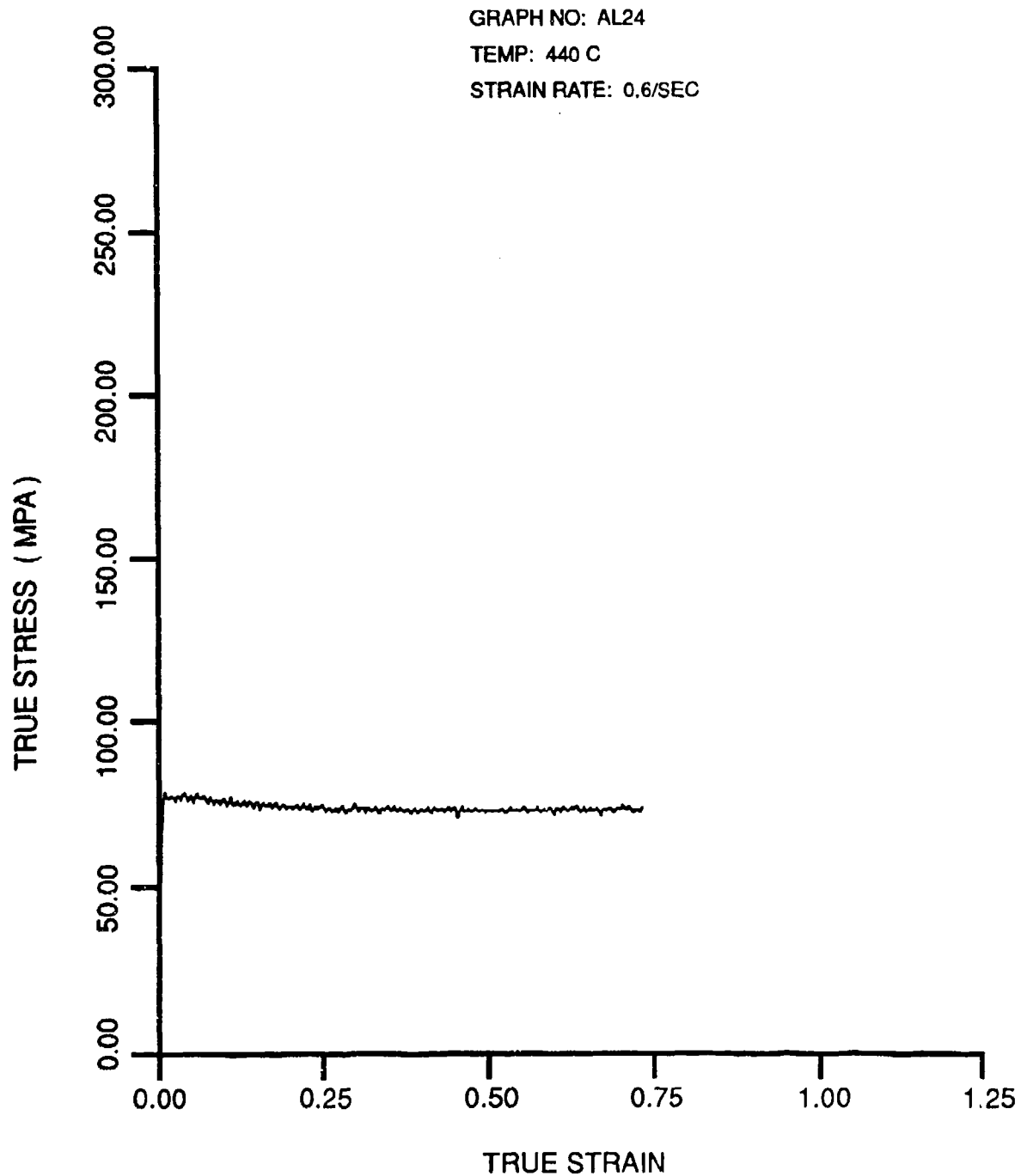




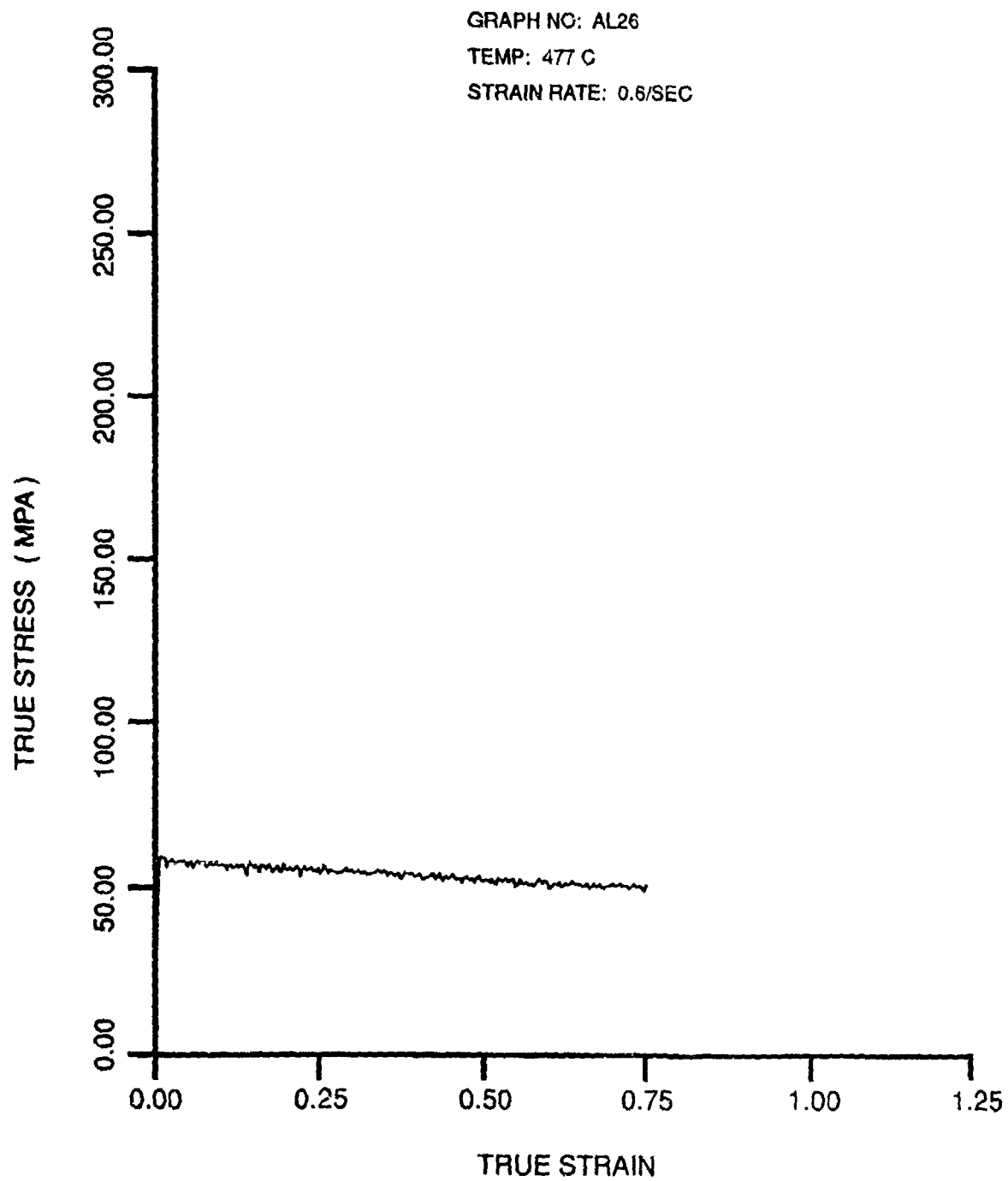
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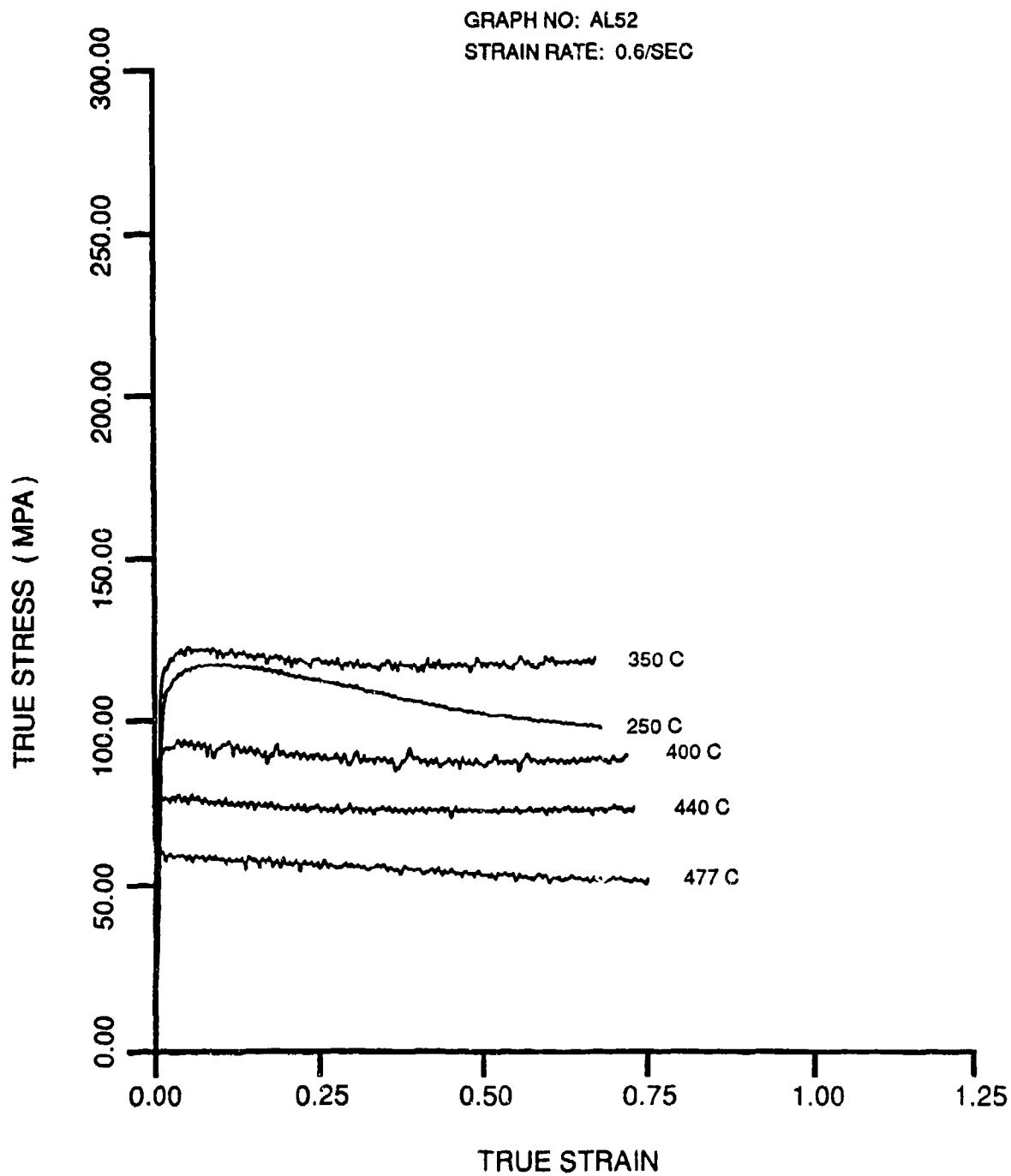
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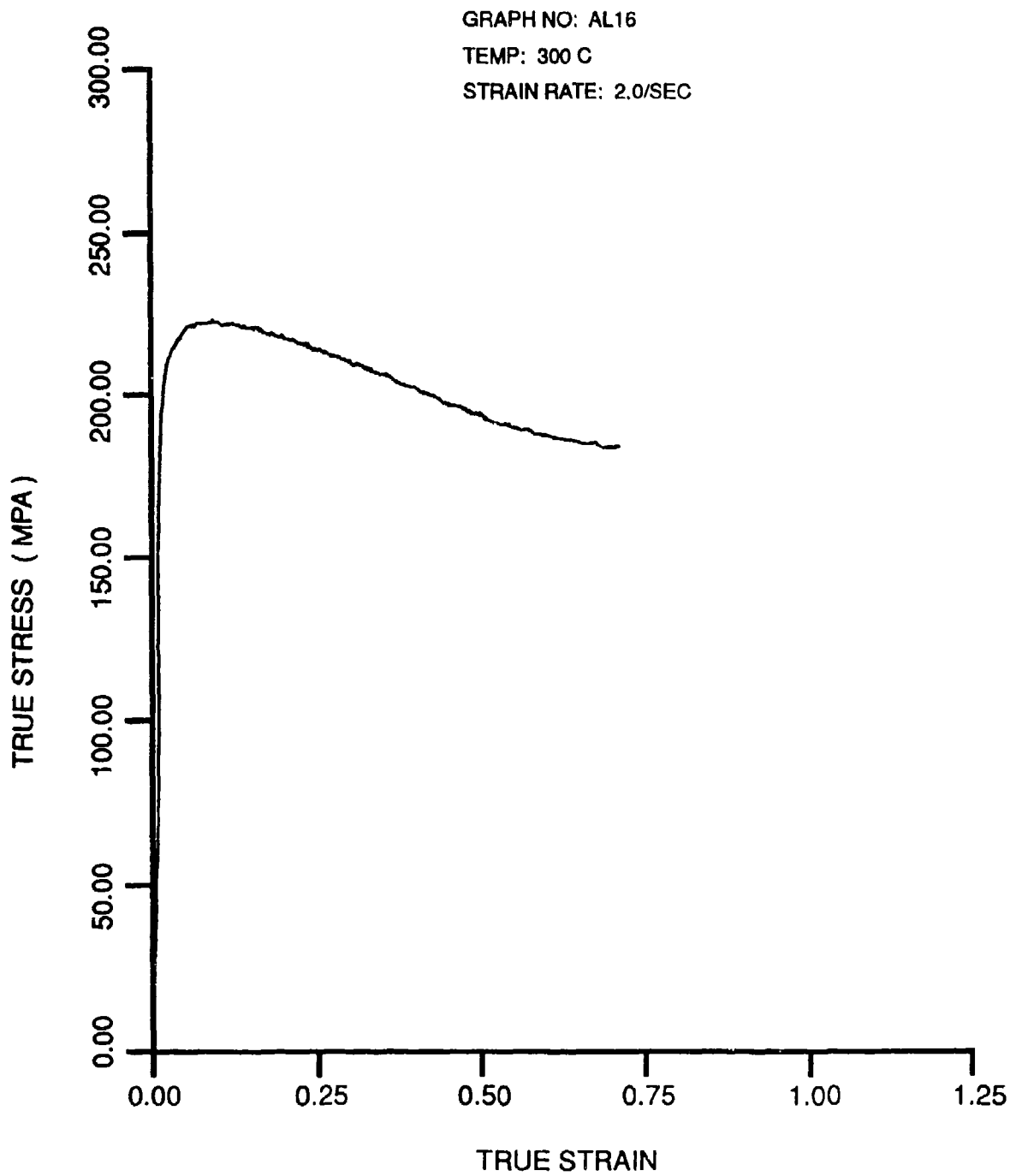
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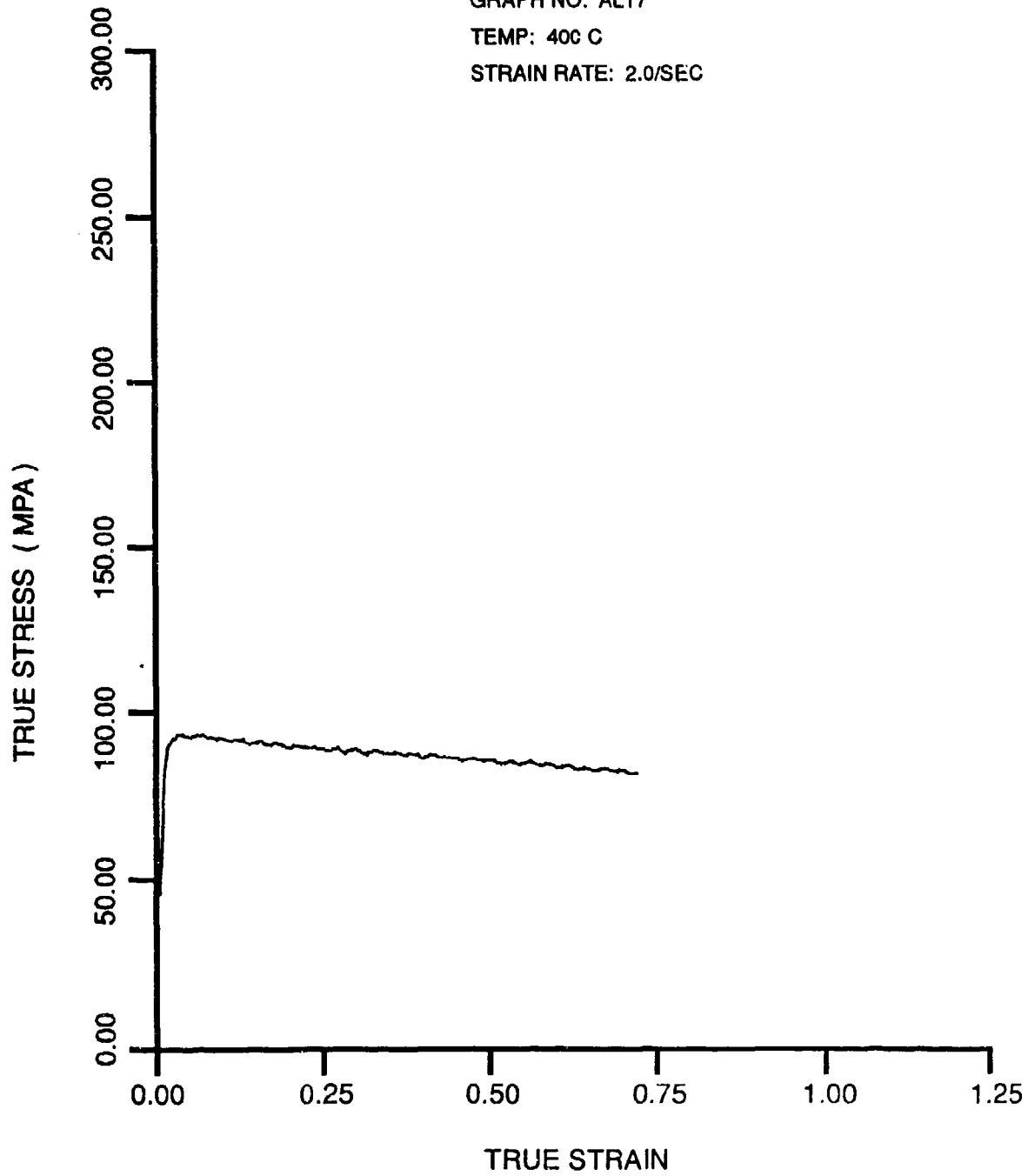


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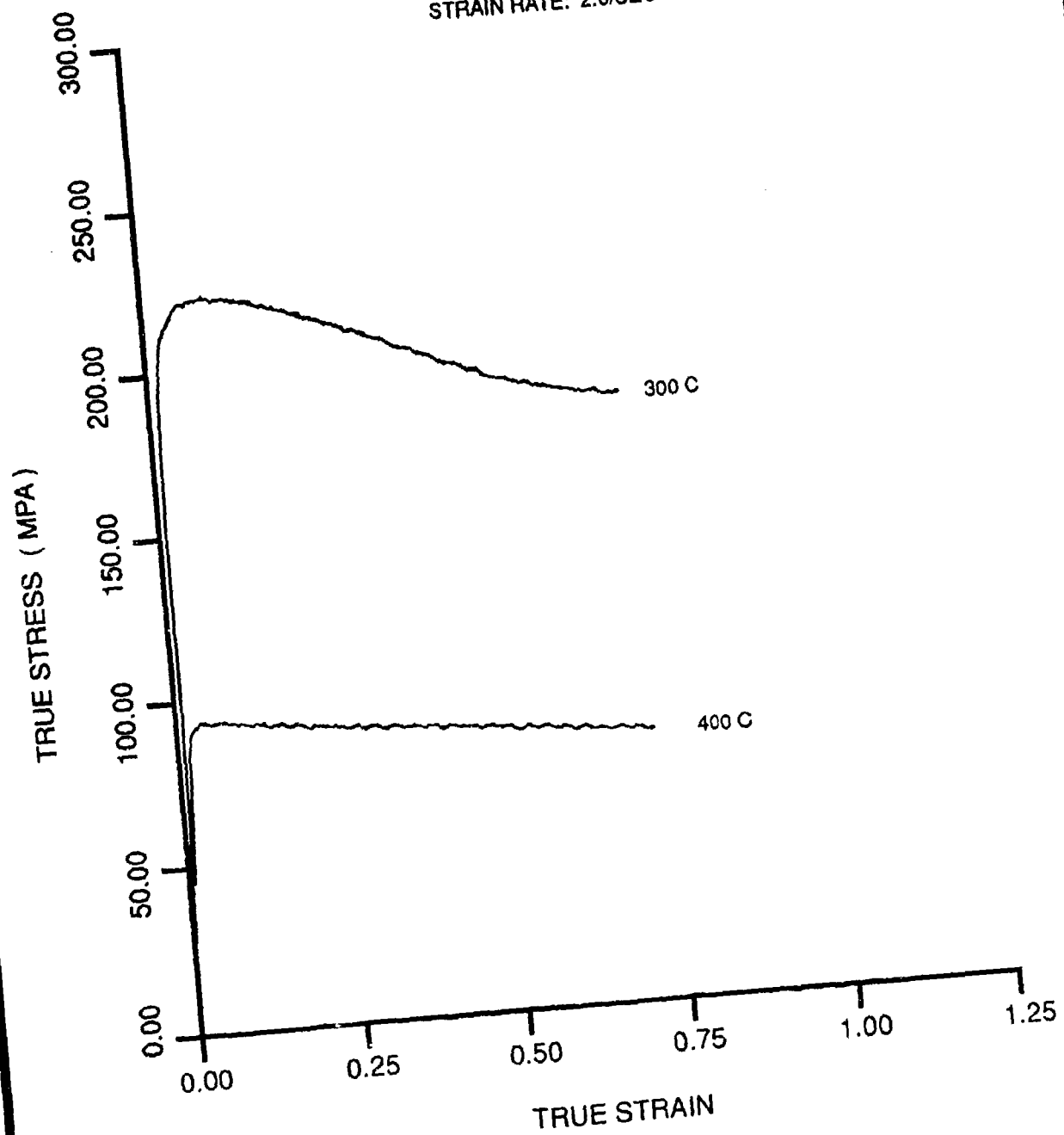
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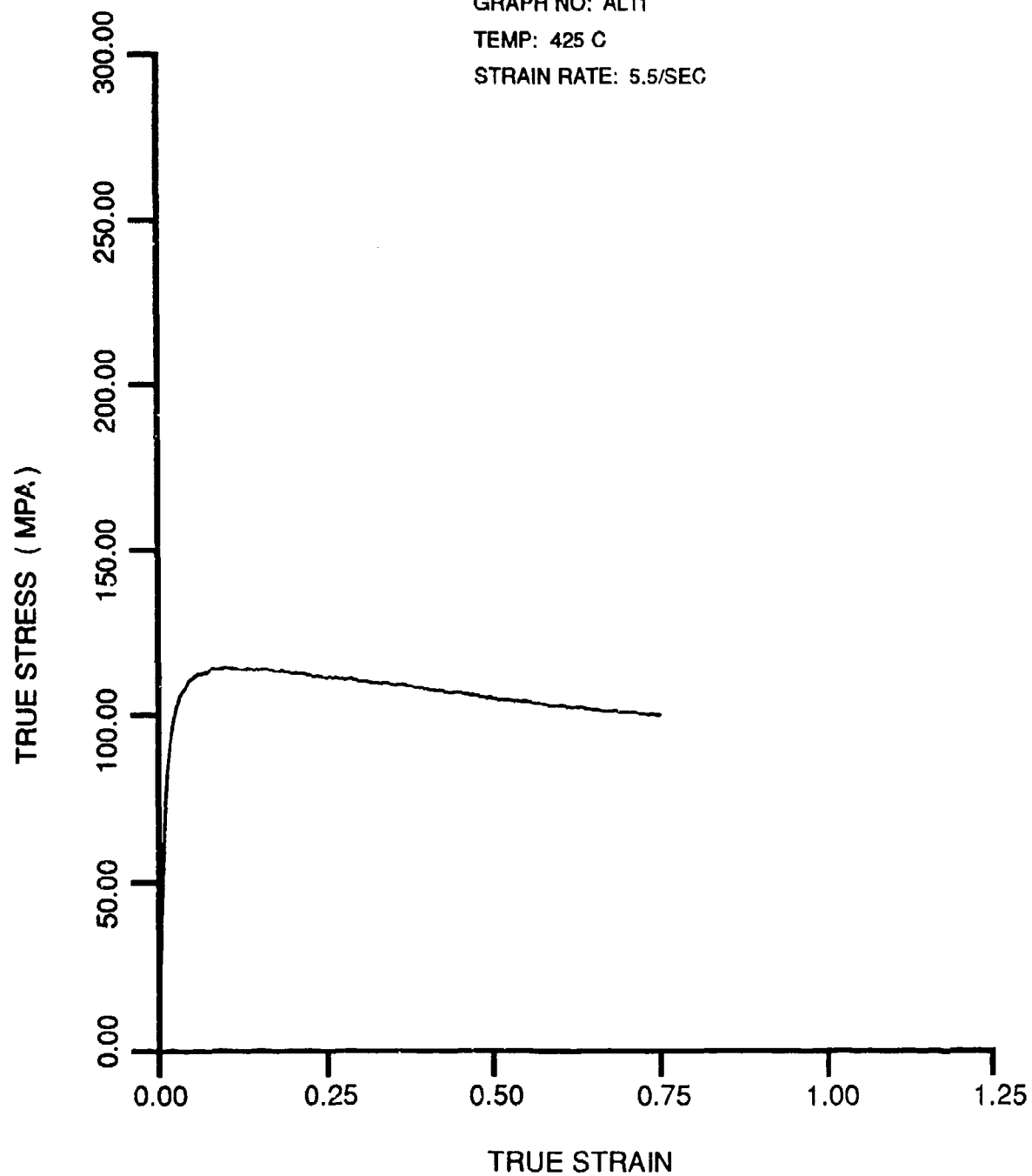
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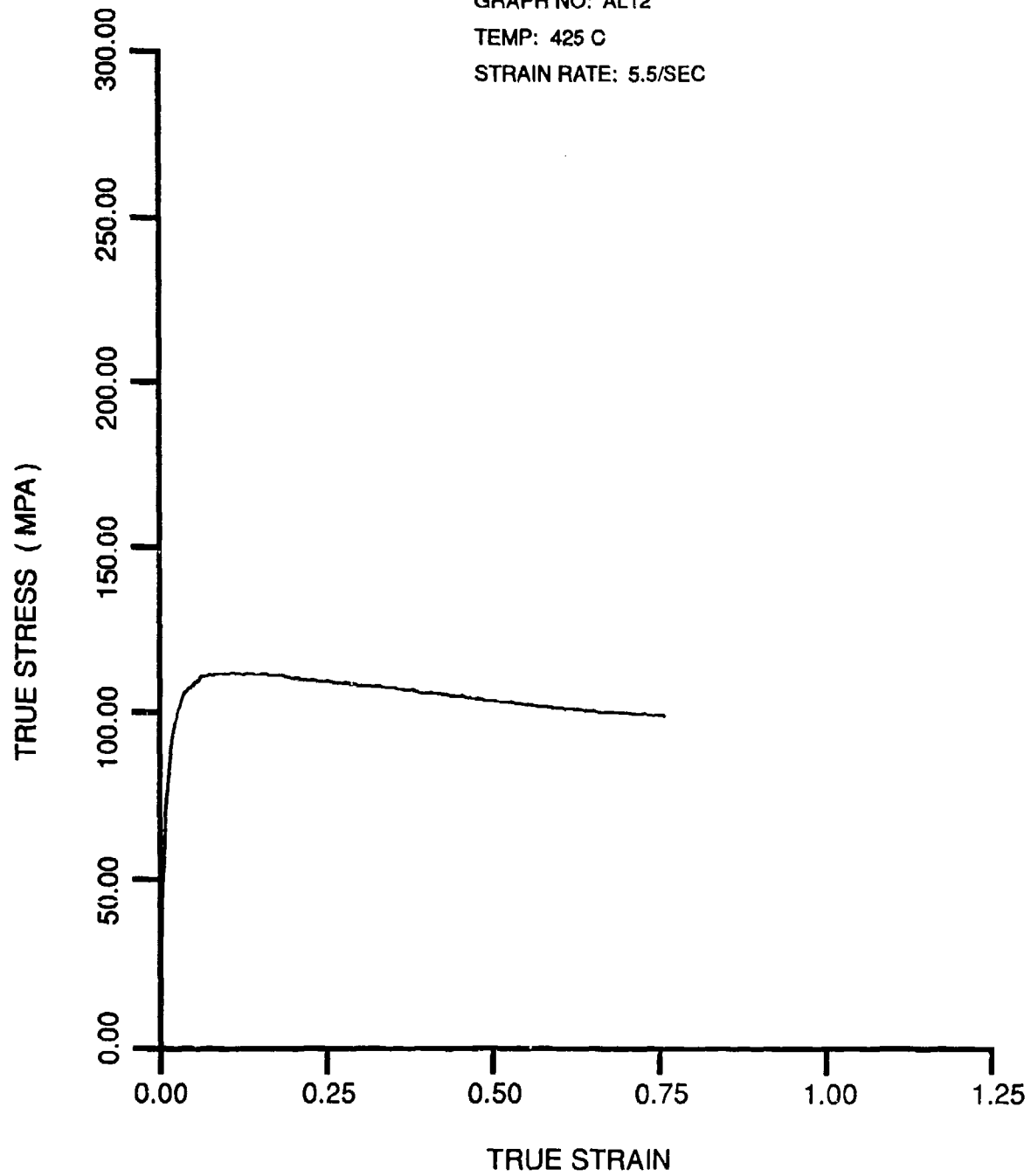
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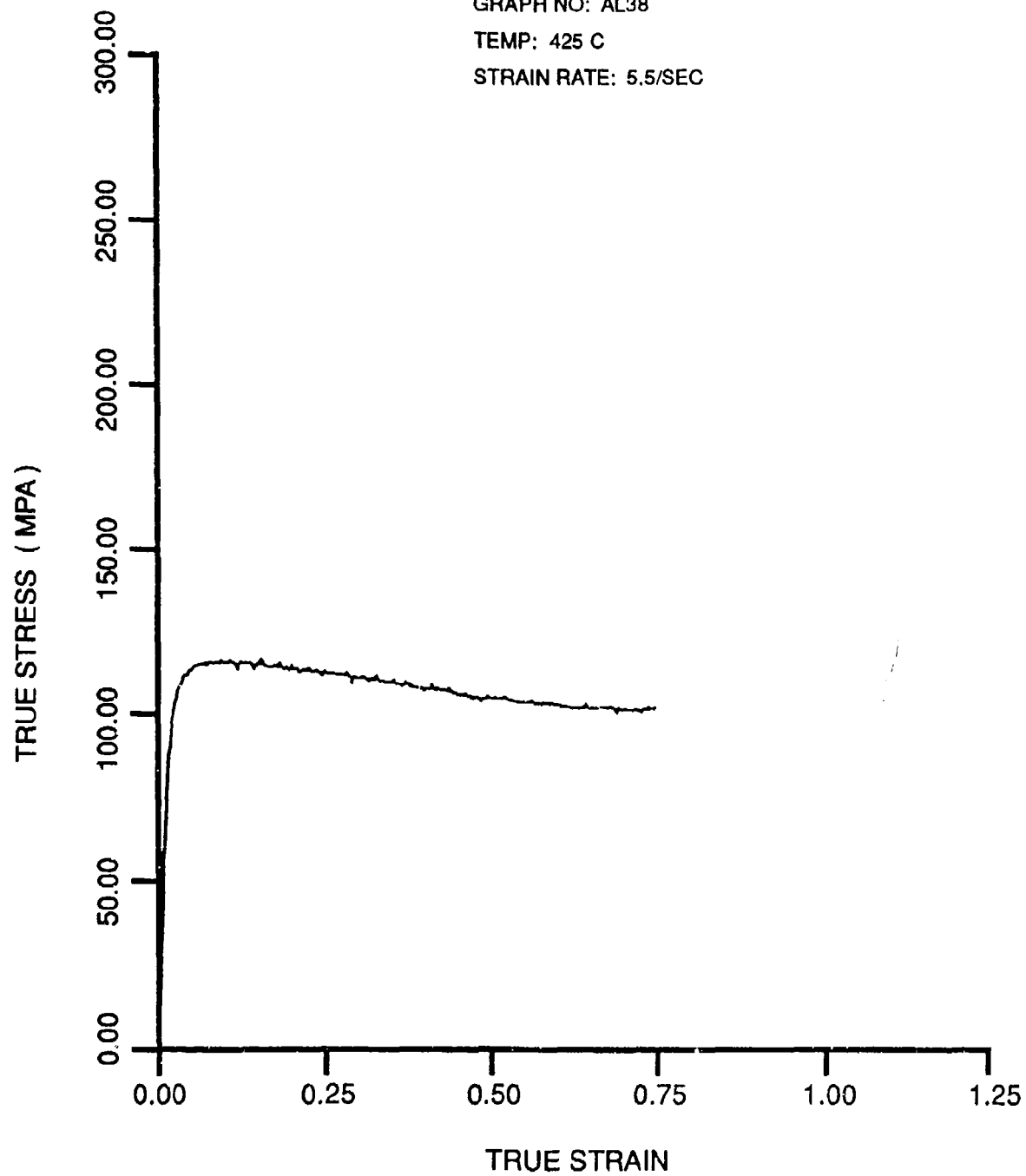


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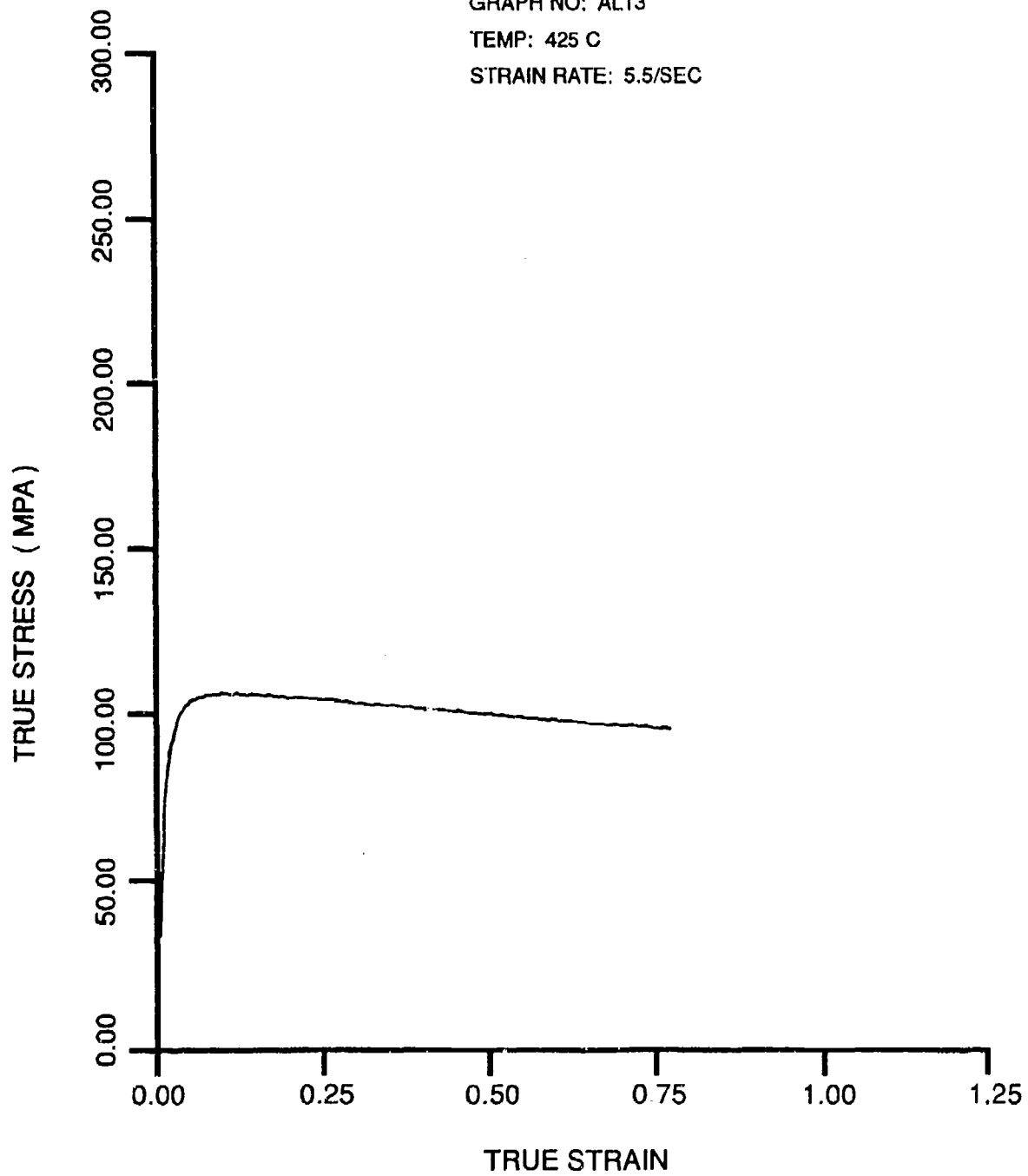


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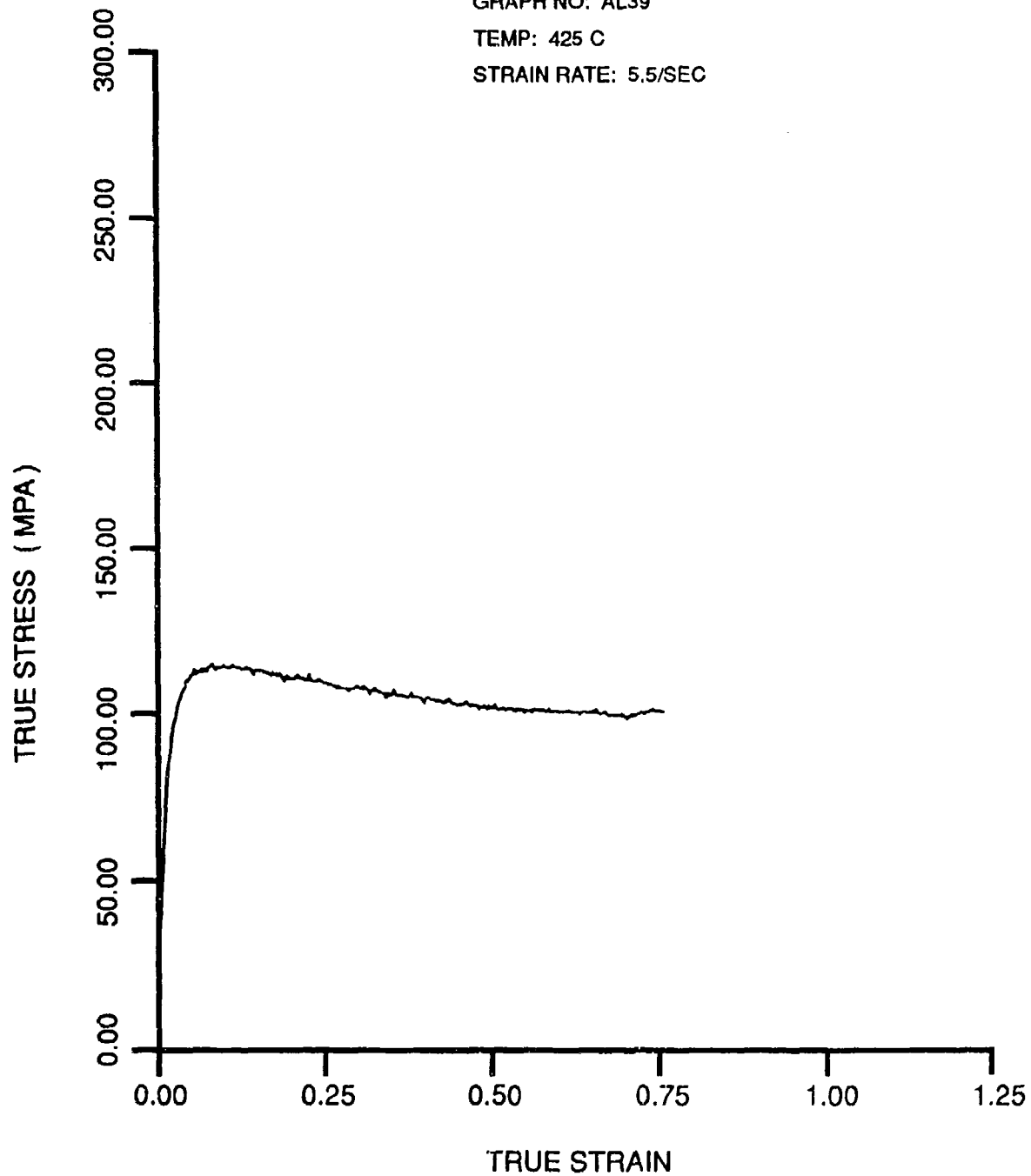


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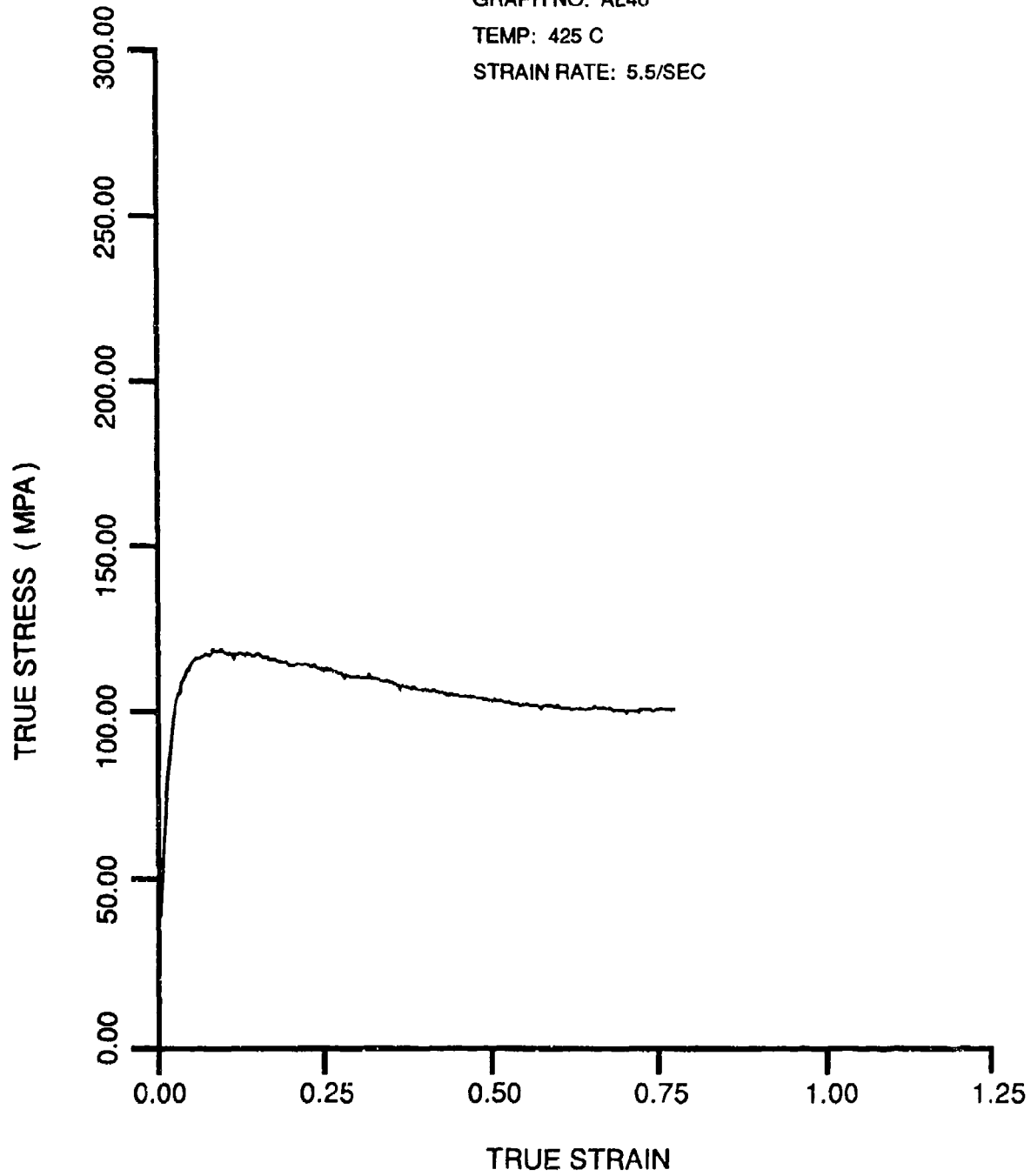


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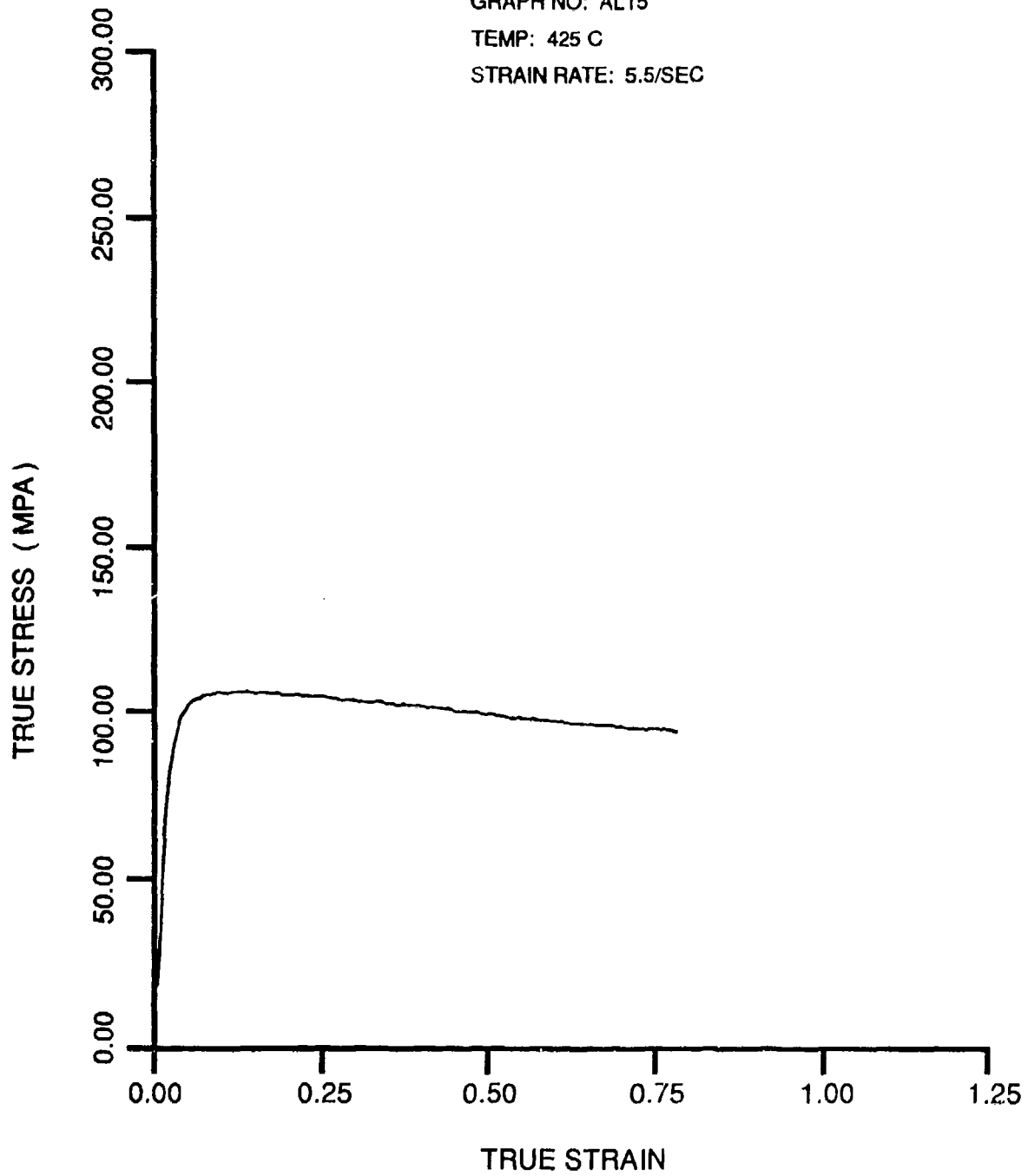


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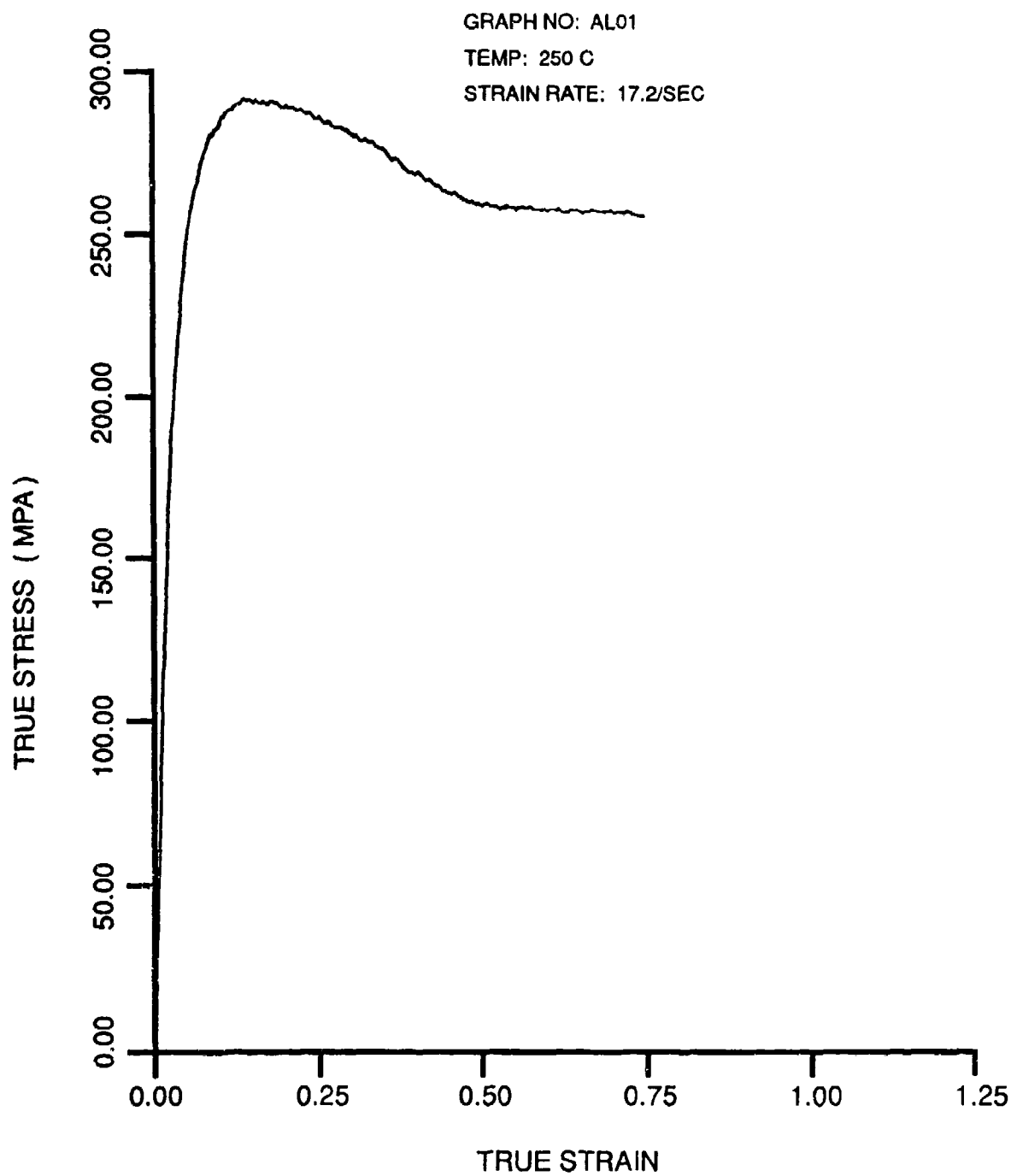
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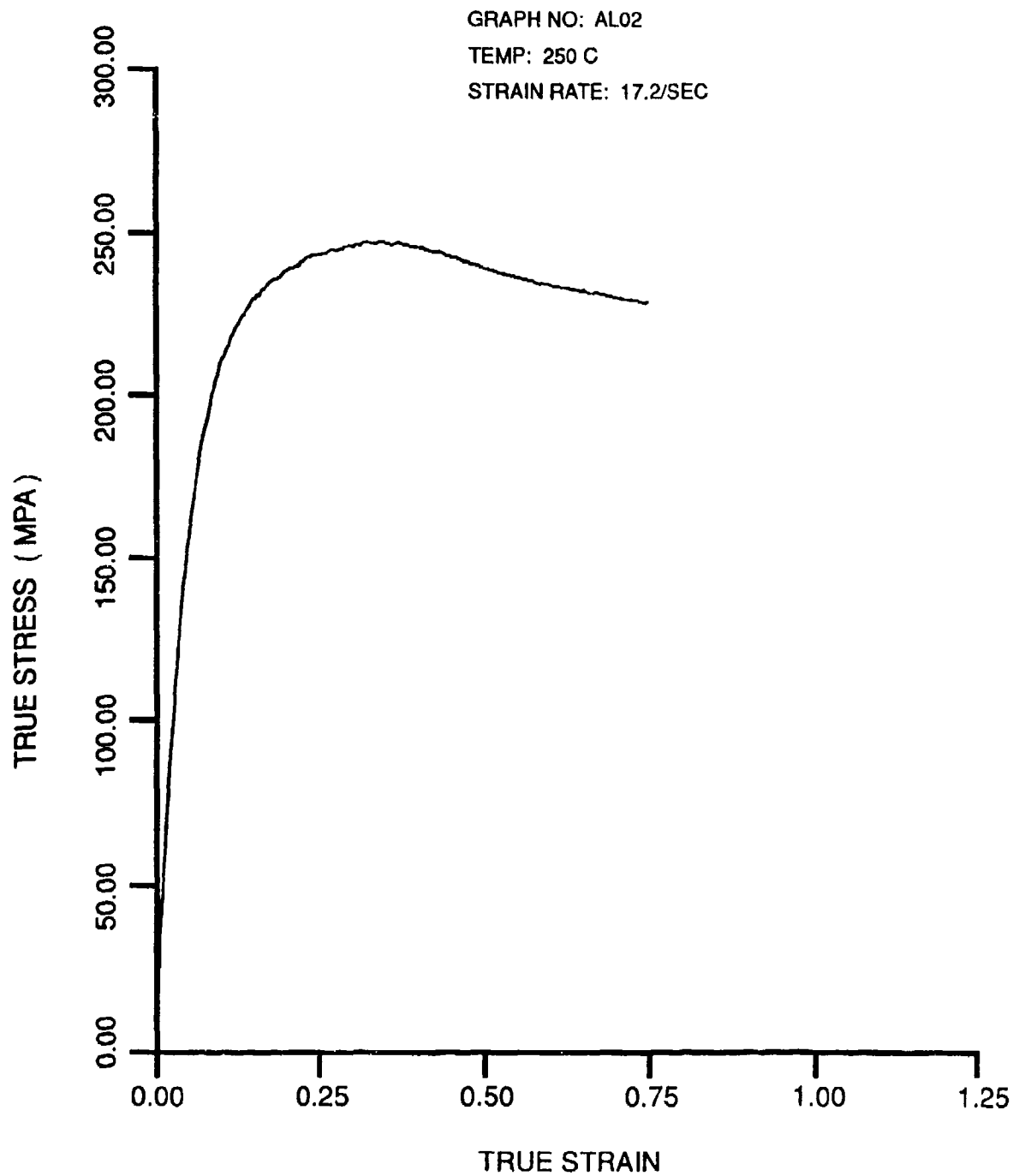


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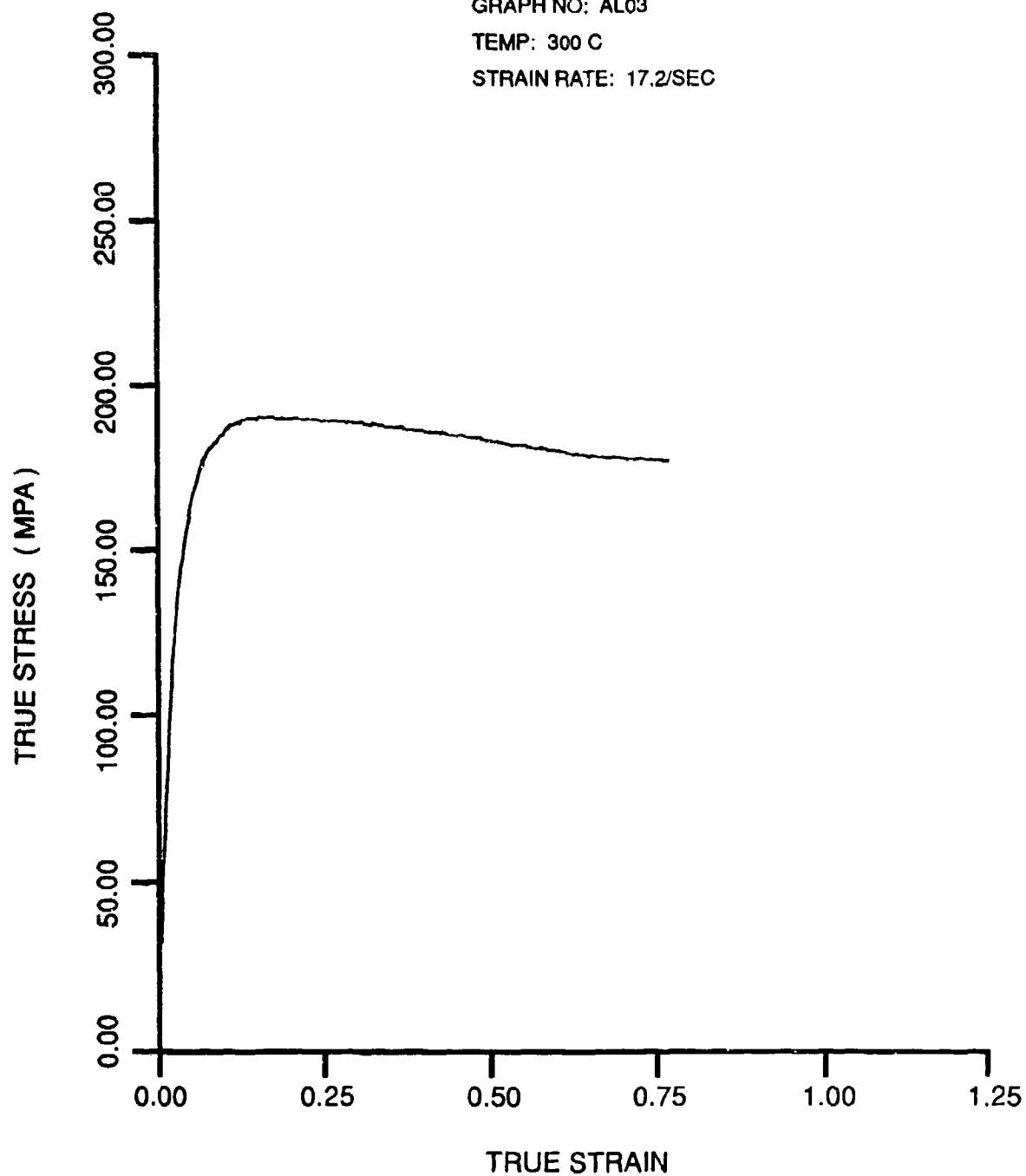


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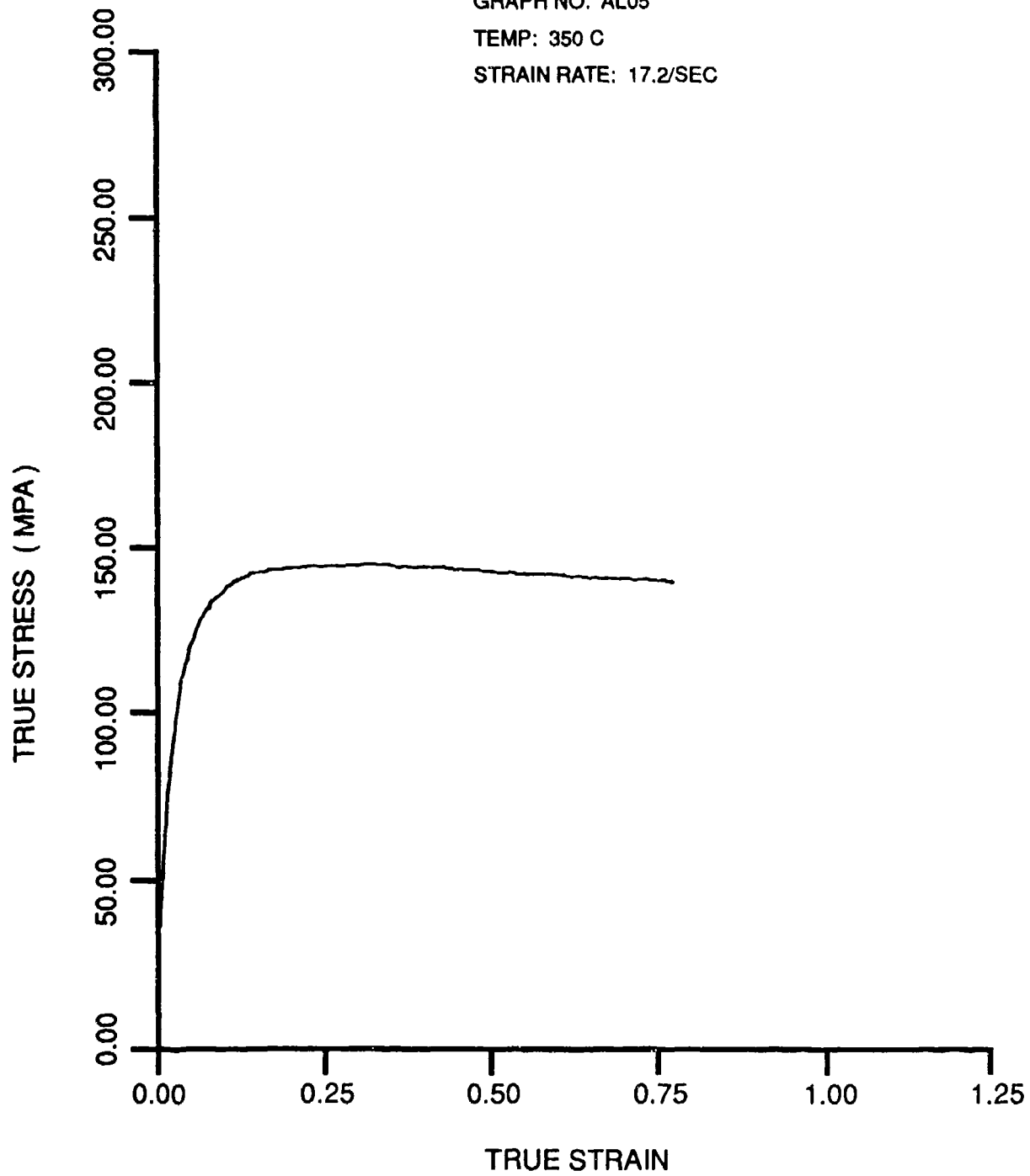


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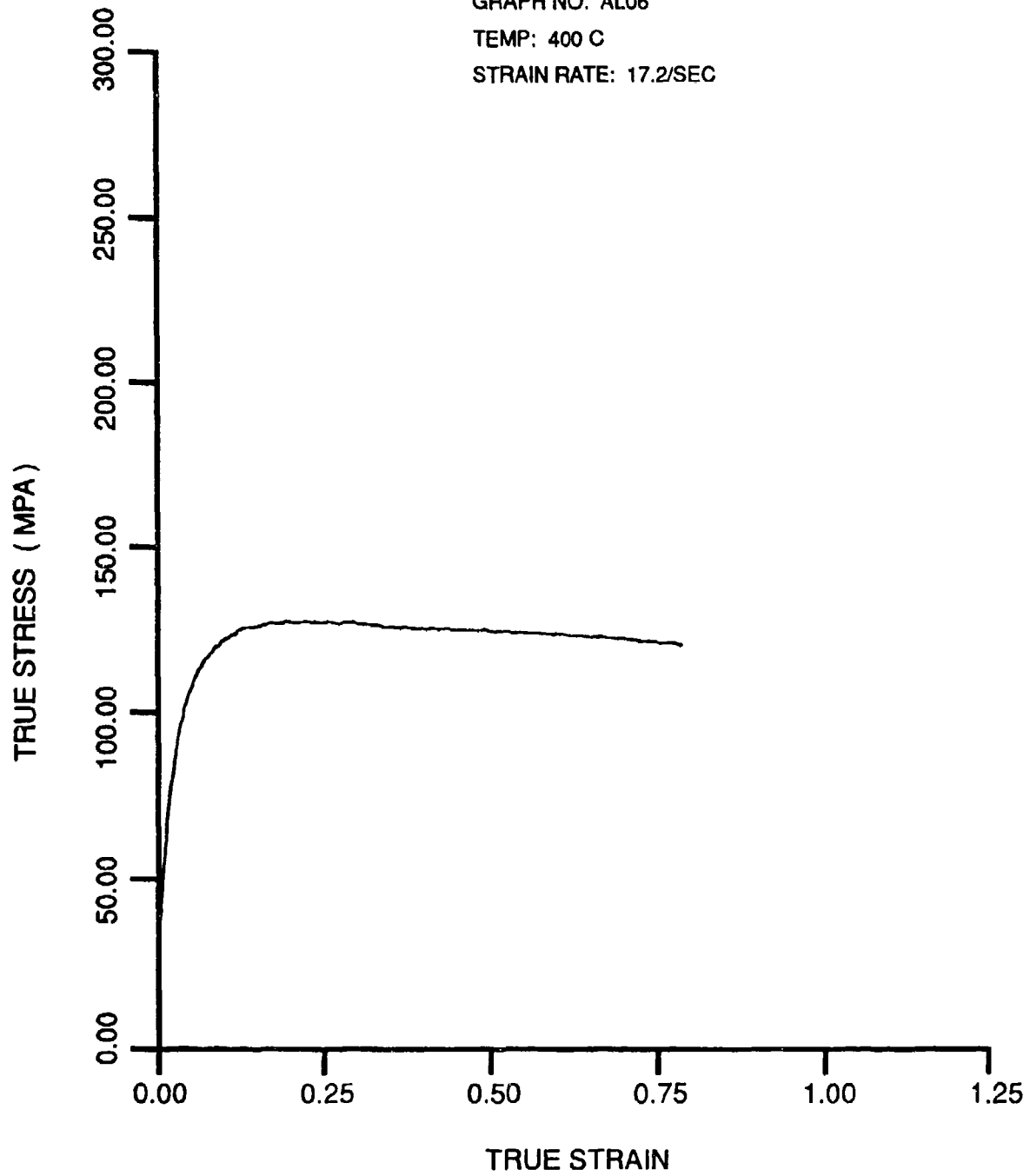
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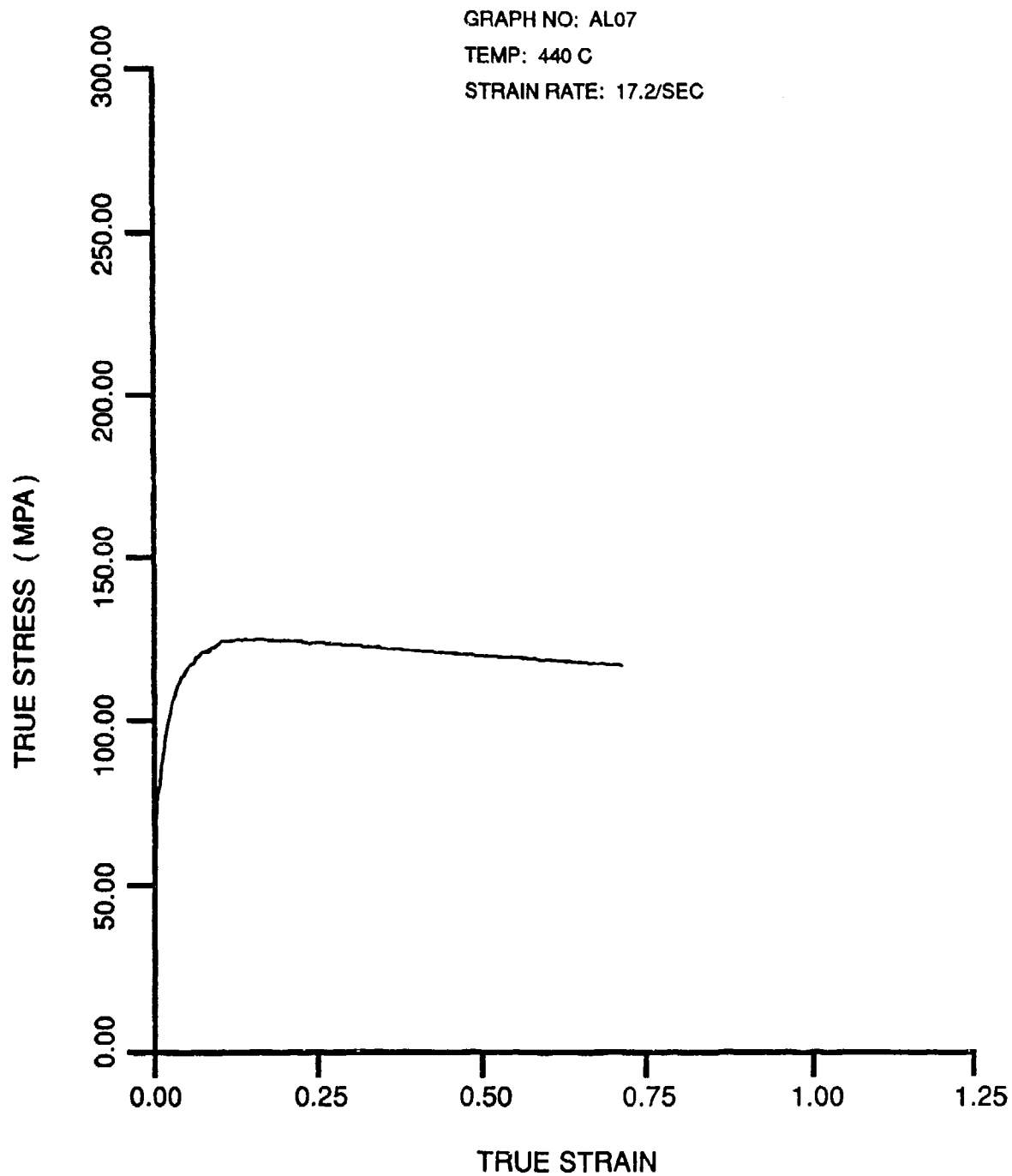


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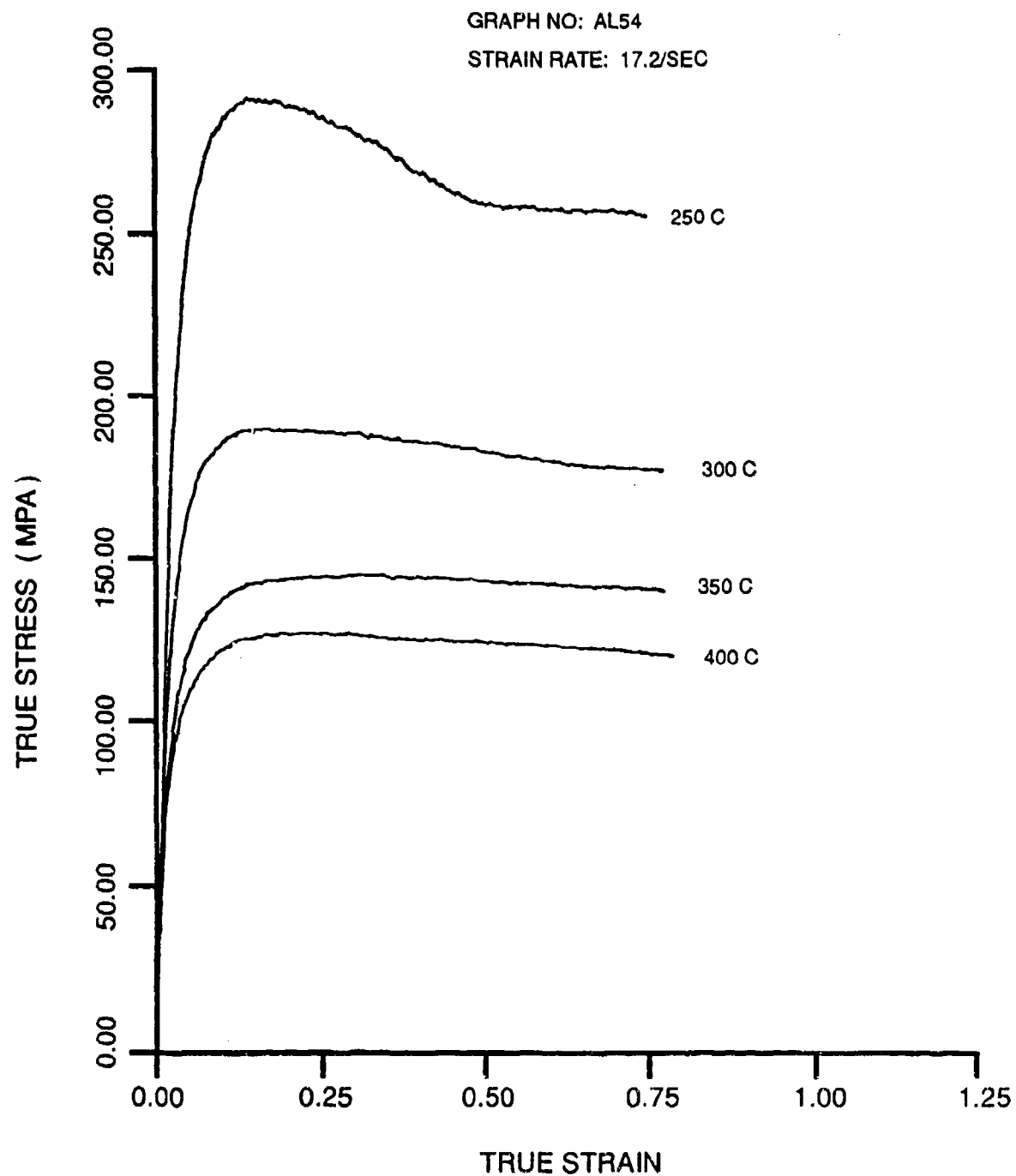
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